

white-hirsute, the inflorescences with the individual spikes 1 cm. wide during anthesis, the bracts very much elongated, attenuate-acuminate, 5--6 mm. long, densely hirtellous and scattered-hirsute.

The type of this variety was collected by Alfred Bornmüller (no. 647) at Villa Germania on the way to Venancio Ayres, very scattered at field-margins, Rio Grande do Sul, Brazil, on March 2, 1906, and is deposited in the herbarium of the Botanische Staatssammlung in Munich. The flowers are said to have been violet in color when fresh.

VITEX LONGISEPALA var. LONGIPES Moldenke, var. nov.

Haec varietas a forma typica speciei foliolis lateralibus distincte petiolulatis recedit.

This variety differs from the typical form of the species in having the two lateral leaflets of each leaf distinctly petiolulate, the petiolules being 6--10 mm. in length.

The type of this variety was collected by Mahmud bin Sider in a swamp forest in the Klang area of the Telok Forest Reserve, Selangor, Malaya, in December, 1969, without collector's number, and is deposited in the herbarium of the University of Malaya at Kuala Lumpur. The collector describes the plant as a tree, 25 feet tall, the trunk 12 cm. in diameter.

VITEX PINNATA f. GLABRESCENS Moldenke, f. nov.

Haec forma a forma typica speciei laminis foliorum subtus glabrescentibus recedit.

This form differs from the typical form of the species in having the lower surface of its leaves glabrescent or subglabrescent.

The type of the form was collected by Mahmud Kasim bin Rajab (no. 91) along a roadside at Damansara, Selangor, Malaya, on June 3, 1960, and is deposited in the herbarium of the University of Malaya at Kuala Lumpur. The collector describes the plant as a tree, 20 feet tall, with pale-blue flowers.

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ADDITIONAL MATERIALS TOWARD A MONOGRAPH OF THE GENUS  
CALLICARPA. XXIV

Harold N. Moldenke

CALLICARPA L.

Additional & emended bibliography: Loes., Verh. Bot. Ver. Brand. 53: 81. 1912; E. D. Merr., Fl. Manila, imp. 1, 397 & 400--401. 1912; H. J. Lam in H. Hallier, Meded. Rijks Herb. Leid. 37: 23, 30, & 32--34. 1918; Whitlock & Rankin, New Techn. Dried Fls. 27. 1962; E. D. Merr., Fl. Manila, imp. 2, 397 & 400--401. 1968; G. W. Thomas, Tex. Fl. Ecolog. Summ. 77. 1969; Howard, Journ. Arnold Arb. 54:

444. 1973; R. R. Rao, Stud. Flow. Pl. Mysore Dist. 2: 747 [thesis]. 1973; Santamour, *Arnoldia* 33: 132. 1973; Seabrook, *Shrubs for Garden*, ed. 1, 36. 1973; Stalter, *Castanea* 38: 37. 1973; Vartak, *Bull. Indian Nat. Sci. Acad.* 45: 253. 1973; Wedge, *Pl. Names*, ed. 1, 2. 1973; Asher, *Guide Bot. Period.* 1 (9): 32 & 207. 1974; Barans, *Castanea* 39: 31. 1974; Barrows, *Biol. Abstr.* 57: 5251. 1974; E. T. Browne, *Castanea* 39: 183. 1974; El-Gazzar, *Egypt. Journ. Bot.* 17: 75 & 78. 1974; Farnsworth, *Pharmacog. Titles* 9: 365 (1974), 9 (1): v (1974), and 9 (2): iii & 116. 1974; R. D. Gibbs, *Chemotax. Flow. Pl.* 3: 1752-1755 (1974) and 4: 2064. 1974; Harkness, *Seedlist Handb.* 38. 1974; Hersey, *Flow. Shrubs & Small Trees* 26 & [80], fig. 46. 1974; Heslop-Harrison, *Ind. Kew. Suppl.* 15: 23, 24, & 151. 1974; Hocking, *Excerpt. Bot. A.* 23: 290. 1974; Howes, *Dict. Useful Pl.* 23, 43, & 168. 1974; "H. R.", *Biol. Abstr.* 57: 1904. 1974; S. B. Jones, *Castanea* 39: 137. 1974; León & Alain, *Fl. Cuba*, imp. 2, 2: 280, 304-309, & 312, fig. 131. 1974; Little, Woodbury, & Wadsworth, *Trees P. R. & Virg. Isls.* 2 [U. S. Dept. Agr. Agric. Handb. 449]: xii, 854, 856, 857, 997, & 1016, fig. 679. 1974; Mani, *Ecol. & Biogeogr. India* [Illies, *Monog. Biolog.* 23:] 185, 240, 268, & 732. 1974; Michx., *Fl. Bor.-Am.*, ed. 1, imp. 2, 1 [Ewan, *Class. Bot. Am.* 3]: 95 (1974) and ed. 1, imp. 2, 2: 334. 1974; Moldenke, *Phytologia* 28: 427-429, 433, 443, 446-448, 454, & 507 (1974) and 29: 23. 1974; Molina R., *Ceiba* 18: 66. 1974; J. F. Morton, *500 Pl. S. Fla.* 39. 1974; Subramanian, Nair, & Vedantham, *Phytochem.* 13: 306-307. 1974; Troncoso, *Darwiniana* 18: 297, 299, 303, 307, 387-389, 401, & 408, fig. 32. 1974; J. V. Watkins, *Fla. Landscape Pl.*, ed. 1, imp. 5, 308, 362, & dust-jacket. 1974; Wedge, *Pl. Names*, ed. 2, 2. 1974; Balgooy, *Pacific Pl. Areas* 3: 244. 1975; D. S. & H. B. Correll, *Aquat. & Wetl. Pl. SW. U. S.*, imp. 2, 2: 1395 & 1744. 1975; Das, *Indian Forest.* 101: 559. 1975; [Farnsworth], *Pharmacog. Titles* 7, Cum. Gen. Ind. [21]. 1975; Fosberg, Falanruw, & Sachet, *Smithson. Contrib. Bot.* 22: 38. 1975; Moldenke, *Phytologia* 29: 506 (1975) and 31: 375, 378, 379, 389-391, 393, & 400. 1975; Molina R., *Ceiba* 19: 95. 1975; Seabrook, *Shrubs for Garden*, ed. 2, 11, 36, & [145]. 1975; Watkins & Sheehan, *Fla. Landscape Pl.*, ed. 2, 347. 1975; Whitlock & Rankin, *Dried Fls.* 27. 1975; Moldenke, *Phytologia* 33: 93-97. 1976; A. L. Moldenke, *Phytologia* 33: 303. 1976; Norman, *Fla. Scientist* 39: 30. 1976; Anon., *Natl. Cancer Inst. Central Files*. n.d.

Dandy (1967) gives the following "official" generic synonymy: "Burcardia Duham. 1755 non Burchardia R. Br. 1810 nom. cons. Tomex L. 1753 = Illa Adans. 1763. Johnsonia Mill. 1754 non R. Br. 1810 nom. cons. Spondylococcus Mitch. 1769." Pfeiffer (1873, 1874) lists as synonyms: Burcardia Heist., Burchardia Duham., and Geunsia Blume. I regard Geunsia as a distinct and valid, albeit closely related, genus.

It should be noted here that the Foreman (1972) reference in the above bibliography is often cited as "1971", the title-page date, but was actually not published until 1972. Similarly, the Angely (1971) reference is often cited as "1970", the title-page date, but was not actually published until 1971. Likewise, al-

though the title-page date of the Lamarck publication cited in the bibliography is "1791", pages 201--440 were actually not issued until 1792: plates 1--100, however, were issued in 1791 (year "VIII" of the Republic, as stated on the title-page). The Endlicher (1838) reference is often cited as "1836-1856", but the page involved here was actually issued in 1838.

Fletcher (1972) describes Callicarpa as "A family [sic!] of neat shrubs notable for their soft rose-madder autumn colour and conspicuous violet or lilac-purple fruits which are freely produced when several plants are grown together." The inference that the plants are dioecious is not true, fruit being produced just as copiously on isolated plants, as I have tested in my own garden with C. dichotoma (Lour.) K. Koch. The remainder of his description, also is certainly not applicable to more than one or two species in the entire genus.

Huang (1972) describes the pollen grains of Callicarpa -- based, apparently on the few Formosan species only! -- as "Grains 3-colpate; subprolate to suboblate; 25--39 x 25--40  $\mu$ ; amb circular or intersubangular; exine 2  $\mu$  thick; tectum with scabrate processes; sexine reticulate, with OL-pattern; nexine usually thinner than [the] sexine, sometimes as thick as [the] sexine."

Gibbs (1974) reports saponins as "present or probably present" or "absent or probably absent" in the fruit of this genus (the contradictory statements depending on whose reports of those quoted are consulted!), but tannins and leucoanthocyanin are definitely absent.

Encke & Buchheim (1972) record the German vernacular name, "Liebesperlenstrauch", for members of this genus. Heyne (1917) records the names, "mēmēniran", "mēniran", and "ringan-ringana", for an unidentified species of Callicarpa in Indonesia.

Hyland (1972) cites U. S. Dept. Agr. Pl. Invent. 349561 & 349562 from New Guinea as unidentified members of this genus, the seed having been collected by H. F. Winters & J. J. Higgins for the U. S. Dept. Agriculture-Longwood Cooperative Program. The former is described as a woody shrub with pinkish-mauve flowers and small violet fruit and the latter as a small tree to 4.6 m. tall, the stems, petioles, and leaf-blades densely pubescent, the lavender flowers in axillary cymes, and the bright-red fruit 0.6 cm. in diameter. Both were "wild" where collected. Foreman (1972) cites NGF.30526 & NGF.31363 and C. & S. 403 as unidentified species of Callicarpa from New Guinea.

The H. H. Bartlett 9772, T. Koyama 15088, Mabdi s.n. [24/7/1963], s.n. [14/8/1963] & s.n. [7/10/1963], and Tackholm & El-sayed s.n. [9/10/1959], s.n. [27/10/1959], & s.n. [30/6/1963], all distributed as Callicarpa sp., are not verbenaceous.

#### CALLICARPA ACULEOLATA Schau.

Additional bibliography: Moldenke, Fifth Summ. 1: 102 & 419 (1971) and 2: 851. 1971; Moldenke, Phytologia 22: 191. 1971; Moldenke, Biol. Abstr. 53: 6372. 1972; Hocking, Excerpt. Bot. A.

21: 115 & 117. 1973.

**CALLICARPA ACUMINATA H.B.K.**

Additional & amended bibliography: Loes., Verh. Bot. Ver. Brand. 53: 81. 1912; Moldenke, Brittonia 1: 472. 1934; Kanjilal, Das, Kanjilal, & De, Fl. Ammas 3: 463. 1939; R. C. Foster, Contrib. Gray Herb. 184: 169. 1958; Anon., Biol. Abstr. 52 (19): B.A.S.I.C. S.36. 1971; Dwyer, Raymondiana 4: 70. 1971; Moldenke, Biol. Abstr. 52: 10542 & 13436. 1971; Moldenke, Fifth Summ. 1: 67, 78, 81, 82, 84, 85, 87, 89, 92, 115, 122, 135, 139, 181, 403-405, 412, 414, 417, & 419 (1971) and 2: 793 & 851. 1971; R. J. Moore, Reg. Veg. 77: 70. 1971; Moldenke, Phytologia 22: 191 & 205 (1971) and 23: 210, 414-416, 427, & 428. 1972; Moldenke, Biol. Abstr. 54: 1725. 1972; Hocking, Excerpt. Bot. A.21: 116. 1973; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 9 (13): 64. 1973; Moldenke in Woodson, Schery, & al., Ann. Mo. Bot. Gard. 60: 121-122 & 145, fig. 11. 1973; Moldenke, Phytologia 25: 309. 1973; Hocking, Excerpt. Bot. A.23: 290. 1974; Molina R., Ceiba 18: 66. 1974; Troncoso, Darwiniana 18: 387-389 & 408, fig. 32 h-p. 1974; Moldenke, Phytologia 31: 378 & 379. 1975; Molina R., Ceiba 19: 95. 1975.

Additional illustrations: Moldenke in Woodson, Schery, & al., Ann. Mo. Bot. Gard. 60: 121, fig. 11. 1973; Troncoso, Darwiniana 18: [388], fig. 32 h-p. 1974.

This species is apparently based on Bonpland 1694 from "in calidis Regni Novo-Granatensis prope Honda [=Tolima, Colombia], alt. 140 hex....Floret Junio", deposited in the Paris herbarium where it was photographed by Macbride as his type photograph number 39492.

Recent collectors describe the plant as a bush, shrub, or small slender tree, 2-8.5 m. tall, the stems  $\frac{3}{4}$  to 3 inches in diameter, sometimes "scandent, to  $\frac{1}{4}$  m. long", the foliage bright-green, the flowers with an agreeable odor, and the fruit red or dark-red to violet, reddish-violet, or purple, or "at first whitish-lavender and erect, later black and pendulous like an elderberry [*Sambucus*]". Chiang says "fruto carnosio color guinda". Haight describes the "inflorescence rather showy". Stevens refers to it as a common shrub or small tree in thick secondgrowth on bright-red soil over broken limestone and describes the flowers as "white except anthers pink".

The corollas are said to have been "whitish" on Erlanson 5, Martínez-Calderón 195, Ventura A. 5393, and Wedel 1627, but "white" on Brahe, Araque M., & Barkley 180704, Contreras 5856, 9292, & 11154, Croat 22219 & 24720, Duke 8515, A. Gentry 7892, C. L. Lundell 16402, Molina R. & Molina 24733, and Wedel 2641.

Recent collectors have found this plant growing on and along the edge of the coastal plain, in sandy soil and open sun, in acacual and matorral, deciduous tropical forests, llanos, roadside thickets, low or high forests bordering savannas, premontane wet forests, high grassland and oak woods, in xerophytic areas and in

scrubby secondgrowth on dry hillsides and on rocky yellow clay hills, at altitudes of 10--1900 meters, fruiting (in addition to months previously reported in this series of notes) from July to September. Dunn and his associates encountered it "in [an] area of Citrus orchards and small thatch dwellings, Indian children and butterflies everywhere, in roadcut and ditch full of tropical shrubs and [in] dry sites by roadfill". Ventura A. refers to it both as "rare" and "abundant" in Veracruz, Mexico; Allen calls it "infrequent" in Costa Rica; Duke found it "very common" on Soskatupo Island and Johnston "abundant" on San José Island, while King refers to it as "locally abundant" in Guatemala. Molina R. encountered it in "matorrales en colinas rocosas" in Honduras.

The variant vernacular name, "pukim", is recorded for the species and Kelly reports that the plant is "used" by the Totonac Amerinds.

Dwyer (1971) cites Woytkowski 7283 from San Martín, Peru. Molina R. (1974) records the species from Comayagua, Honduras.

The Barkley, Webster, & Paxon 864, Contreras 6989, Croat 23956, A. Gentry 8320, Hitchcock & Stanford 6868, Matuda 3644, Edw. Palmer 174 & 388, Sharp 50-5011, J. R. Sullivan 502, and Taylor & Taylor 7324, distributed as typical C. acuminata, are actually all var. argutedentata Moldenke, Leavenworth 226, Lesueur 425, R. McVaugh 10489, and Roe, Roe, & Mori s.n. [July 11, 1965] are var. pringlei (Briq.) Moldenke, and Burger & Liesner 6878 is Aegiphila falcata Donn. Sm.

Additional citations: MEXICO: Campeche: C. L. Lundell 895 (Tu-122217), 1006 (Tu-124594). Nuevo León: Graham & Johnston 4640 (Au-174675). Oaxaca: Martínez-Calderón 195 (W-1840992). Quintana Roo: Lundell & Lundell 7810 (W-1894795). San Luis Potosí: Dunn, Harmon, & Enright 17511 (N); Edwards 455 (Tu-119051); Morton 45169 (Tu-33228); J. N. Weaver 666 (W-2134161). Tamaulipas: H. S. Gentry 6713 (W-1978715); Manning & Manning 53396 (Au-234361); Martínez Martínez & Borja Luyando F.1965 (Au-195474); Viereck 1060 (W-1687528). Veracruz: Barr 62-725 (Tu-172578); Barr & Niles 265 (Tu-152220); F. Chiang 119 (M1); García Saucedo 33 (Ws); I. Kelly 333 (Ba); Liebmann 11301 (Ba); Ventura A. 4624 (M1, M1), 5393 (M1, Tu-183847). Yucatán: Enriquez 13 (W-2618988); Lundell & Lundell 7519 (W-1898722); W. D. Stevens 1181 (Ld); Swallen 2533 (W-1635064). GUATEMALA: Alta Verapaz: R. M. King 3354 (Au-185914, W-2363026). El Petén: Contreras 3339 (Ld), 5856 (Au-254079, Ld), 6128 (Au-278533, Ld); Croat 24720 (N); C. L. Lundell 16402 (Ld); Molina R. 15664 (W-2752098); Ortiz 1897 (N). Izabal: Contreras 9292 (Ld, Ld), 11154 (Ld, Ld). BELIZE: Gentle 199 (W-1587398); A. Gentry 7892 (N). HONDURAS: Comayagua: Molina R. 7073 (W-2400822). Copán: Molina R. 6583 (W-2400819). Cortés: Dickson 1318 (W-2700709); Molina R. 3495

(W-2024631). BAY ISLANDS: Roatán: Harmon & Dwyer 3935 (Mi). COSTA RICA: Limón: Morley 809 (W-1975427). Puntarenas: P. H. Allen 5284 (N, W-1979432). PANAMA: Bocas del Toro: Wedel 1627 (W-1862966), 2641 (W-1892699), 2666 (W-1924209), 2980 (W-1841969). Chiriquí: Croat 22219 (W-2745301). Coclé: P. H. Allen 2488 (W-1808617, W-1808618). San Blas: G. P. Cooper 220 (W-1557447), 220a (W-1557448); Croat 16920 (N). Old Bank Island: Wedel 1895 (W-1920234). Soskatupu Island: Duke 8515 (W-2617297). PEARL ISLANDS: San José: Erlanson 5 (W-1894164); I. M. Johnston 6 (W-2023871). COLOMBIA: Antioquia: Brahe, Araque Molina, & Barkley 18C704 (W-1998524). Córdoba: López-Palacios 3878 (Ld). Tolima: Bompland 1694 [Macbride photos 39492] (W-photo); Haught 2427 (W-1707060). PERU: San Martín: Belshaw 3148 (Ba, W-2526027).

*CALLICARPA ACUMINATA* var. *ARGUTEDENTATA* Moldenke, *Phytologia* 23: 210. 1972.

Bibliography: Moldenke, *Biol. Abstr.* 54: 1725. 1972; Moldenke, *Phytologia* 23: 210 & 414-416. 1972; Hocking, *Excerpt. Bot. A.* 23: 290. 1974; Moldenke, *Phytologia* 31: 378. 1975.

Collectors describe this plant as a small shrub, 1-7 m. tall, and have found it growing at the borders of lakes, in secondgrowth, in cutover pinewoods and thickets, in wooded swamps, and along small creeks in thorn forests on limestone slopes, at altitudes of 320-1200 meters, flowering from May to September and in November, fruiting in August and December. Sullivan found it in an "ecotone from Quercus-Liquidambar to tropical deciduous forest" and the Molinas refer to it as "common". McVaugh reports it as occasional in oak forests on limestone soil.

The corollas are said to have been "white" on Bequaert 26, Croat 23956, A. Gentry 8320, and Molina R. & Molina 24733 and "creamy white" on Contreras 6989.

Material of this taxon has hitherto been identified and distributed as typical *C. acuminata* H.B.K. or *C. pringlei* Briq. and some of it was thus previously cited by me. On the other hand, the Barkley, Webster, & Paxon 864, Hitchcock & Stanford 6868, Edw. Palmer 388, Sharp 50:5011, and Taylor & Taylor 7324, previously cited as var. *argutedentata*, are probably better treated as var. *pringlei* (Briq.) Moldenke.

Citations: MEXICO: Chiapas: Matuda 3641 (F-1026375, Mh, Mh, Mi, N). Oaxaca: E. W. Nelson 2718 (W-228713). San Luis Potosí: R. McVaugh 10489 (N, W-2451934). Tamaulipas: M. C. Johnston 5799 (Au-187622-type); Edw. Palmer 174 (Ca-153287, E-118813, F-217514, N, W-572404); J. R. Sullivan 502 (Au-298161), 607 (Au-298162); Viereck 722 (W-1687382). GUATEMALA: El Petén: Contreras 6989 (Au-278539, Ld, Ld); A. Gentry 8320 (N). BELIZE: Croat 23956 (N). HONDURAS: Atlántida: P. C. Standley 55185 (W-1408711).

Copán: Molina R. & Molina 24733 (N).

CALLICARPA ACUMINATA var. PRINGLEI (Briq.) Moldenke, Phytologia 23: 210. 1972.

Synonymy: Callicarpa americana Sessé & Moc., Pl. Nou. Hisp. 2: 18. 1893 [not C. americana Blanco, 1884, nor Hort., 1936, nor L., 1753, nor Lam., 1966, nor Lour., 1794, nor Roxb., 1945, nor Thunb., 1926, nor Willd., 1820]. Callicarpa pringlei Briq., Bull. Herb. Boiss., ser. 1, 4: 345—346. 1896. Callicarpa pringlei Briq. ex Moldenke, Suppl. List Invalid Names 2, in syn. 1941. Callicarpa pringlei Briq. ex H. N. & A. L. Moldenke, Pl. Life 2: 77, sphalm. 1948.

Bibliography: Sessé & Moc., Pl. Nou. Hisp. 2: 18. 1893; Briq., Herb. Boiss., ser. 1, 4: 345—346 & 924. 1895; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 32. 1904; P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1253. 1924; Moldenke in Fedde, Repert. Spec. Nov. 39: 301 (1936) and 40: 43—45, 57. 120, 123, 127, 128, & 130. 1936; Moldenke, Known Geogr. Distrib. Avicenn. 13. 1939; Moldenke, Prelim. Alph. List Invalid Names 9. 1940; Moldenke, Carnegie Inst. Wash. Publ. 522: 198—200. 1940; Moldenke, Suppl. List Invalid Names 2. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 16 & 87. 1942; Moldenke, Alph. List Invalid Names 8 & 10. 1942; Moldenke, Alph. List Cit. 1: 227, 229, 301, 302, 306, 307, 311, & 316. 1946; H. N. & A. L. Moldenke, Pl. Life 2: 77. 1948; Moldenke, Castanea 13: 114. 1948; Moldenke, Alph. List Cit. 2: 339, 418, 421, 426, 435, & 467 (1948), 3: 656, 785, 786, 807, 829, & 925 (1949), and 4: 1019, 1026, 1028, 1053, & 1111. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 28, 34, & 178. 1949; Moldenke, Phytologia 3: 451. 1951; Moldenke, Résumé 34, 40, 241, 246, & 444. 1959; Langman, Select. Guide Lit. Flow. Pl. Mex. 1010. 1964; Moldenke, Résumé Suppl. 13: 6. 1966; Moldenke, Phytologia 14: 107, 111, 191, 433, 434, 439, 475, & 476 (1966) and 16: 367. 1968; Marroquin, Cuad. Inst. Invest. Cient. 14: 13. 1968; Moldenke, Phytologia 20: 488 (1971), 21: 50, 102, 385, & 465—467 (1971), and 22: 191 & 205. 1971; Moldenke, Fifth Summ. 1: 67, 77, 404, & 416 (1971) and 2: 793 & 855. 1971; Moldenke, Biol. Abstr. 54: 1725. 1972; Moldenke, Phytologia 23: 210, 414, & 428. 1972; Hocking, Excerpt. Bot. A. 23: 290. 1974; J. A. Clark, Card-Ind. Gen. Sp. & Var. Pl. issue 11. n.d.

Recent collectors have found this plant growing on semi-deserts, along roadsides, in oak forests on limestones, and "en terrenos margosos con vegetación de bosque tropical bajo". Roe and his associates encountered it "on steep moist north-facing limestone talus slope with dense canopy and with many lianas and epiphytes". They describe it as a shrub, 1.5—2.5 m. tall, found it growing at altitudes of 50—900 m., flowering from May to August, and fruiting in August and December. The Taylors found it on older stabilized dunes with forest cover along a sluggish river. The corollas are said to have been "white" on Leavenworth 226.

Material of this variety has been identified and distributed in many herbaria as typical C. acuminata H.B.K., as its var. argutedentata Moldenke, or as C. ferruginea Sw. On the other hand, the R. McVaugh 10489, distributed as var. pringlei, is better regarded as var. argutedentata.

Citations: MEXICO: Quintana R6o: G. F. Gaumer 82 (B, F, G, K, Z--photo, Z--photo). San Luis Potosi: Kenoyer s.n. [Valles, 8-39] (Mi); Leavenworth 226 (N, Tu--98484); LeSueur 425 (Au, Tu--98482); Edw. Palmer 123 (Ca--148594, E, E, F--176444, G, K, N, N--photo, W--470985, Z--photo, Z--photo, Z--photo), 251 (A, Cm, E--119262, F--130024, G, Me, Mi, Mi--photo, N, N--photo, W--397804, Z--photo, Z--photo, Z--photo, Z--photo, Z--photo); F. W. Pennell 17918 (Me, N, N, W--1640841); Pringle 3094 (A--isotype, B--isotype, Bm--isotype, Br--isotype, Ca--104992--isotype, Cb--type, Cm--isotype, D--isotype, E--isotype, Ed--isotype, Es--isotype, F--105196--isotype, F--263363--isotype, G--isotype, J--isotype, K--isotype, L--isotype, Ln--69937--isotype, Me--isotype, Me--isotype, Mi--isotype, Mm--15348--isotype, Ms--30944--isotype, Mu--1738--isotype, N--isotype, N--photo of type, N--photo of isotype, N--photo of isotype, N--photo of isotype, N--photo of isotype, N--photo of isotype, N--photo of isotype, P--isotype, P--isotype, Pa--isotype, Po--63852--isotype, S--isotype, V--isotype, Vt--isotype, Vu--isotype, W--42714--isotype, X--isotype, Z--photo of isotype, Z--photo of isotype, Z--photo of isotype, Z--photo of isotype, Z--photo of isotype, Z--photo of isotype, Z--photo of isotype); Roe, Roe, & Mori s.n. [July 11, 1965] (Ws); J. Rzedowski 7766 (Au--243222, Ip). Tamaulipas: Barkley, Webster, & Paxon 864 (Au--169010, N); Hitchcock & Stanford 6868 (Ca--710768, Du--315601, N, Or--54912, Pl--133110, Po--266850, Se--58670, Ur, W--2216492); Edw. Palmer 388 (Ca--145694, E--118816, F--217702, N, W--572619); J. Rzedowski 10345 (Au--243538); Sharp 50:5011 (N). Veracruz: Taylor & Taylor 7324 (N); Wawra 1019 (V, Z--photo). Yucatán: Bequaert 26 (W--1477671); Gaumer & sons 23886 (A, Bm, Ca, Cb, Cp, E, F--466367, K, N, S, Us, W--1268029, Z--photo, Z--photo, Z--photo, Z--photo, Z--photo). State undetermined: Kenoyer & Crum 3622 [Ocampo] (Mi); Sessé, Mociffo, Castillo, & Maldonado 519 [Patzahumacici, El Espinal; ic. no. 293] (E--photo, F--850366, N--photo, Q, Z--photo).

#### CALLICARPA ACUTIDENS Schau.

Additional bibliography: Moldenke, *Phytologia* 22: 191. 1971; Moldenke, *Fifth Summ.* 1: 298 (1971) and 2: 851. 1971.

#### CALLICARPA ACUTIFOLIA Chang

Additional citations: Moldenke, *Phytologia* 20: 489--490. 1971; Moldenke, *Fifth Summ.* 1: 285 (1971) and 2: 851. 1971.



## CALLICARPA ALBIDO-TOMENTELLA Merr.

Additional bibliography: Moldenke, *Phytologia* 21: 329. 1971; Moldenke, *Fifth Summ.* 1: 314 (1971) and 2: 851. 1971.

## CALLICARPA ALONGENSIS Dop

Additional bibliography: Moldenke, *Phytologia* 16: 358. 1968; Moldenke, *Fifth Summ.* 1: 298 (1971) and 2: 851. 1971.

## CALLICARPA AMERICANA L.

Additional & emended bibliography: Lam., *Tabl. Encycl. Méth. Bot.* [Illustr. Gen.] 1: pl. 69, fig. 1 (1791) and 1: 292. 1792; Rausch., *Nom. Bot.*, ed. 3, 37. 1797; Michx., *Fl. Bor.-Am.*, ed. 1, imp. 1, 95. 1803; Desf., *Tabl. Écol. Bot.*, ed. 1, 54. 1804; Willd., *Emm. Pl. Hort. Berol.* 1: 157—158. 1809; Desf., *Tabl. Écol. Bot.*, ed. 2, 64. 1815; S. Ell., *Sketch, imp. 1*, 1: 199. 1816; Pers., *Sp. Pl.* 1: 342. 1817; Michx., *Fl. Bor.-Am.*, ed. 2, 1: 95. 1820; S. Ell., *Sketch, imp. 2*, 1: 199. 1821; D. Dietr., *Taschenb. Ausländ. Arzneigew.* 53 & 513. 1839; Spach, *Hist. Nat. Veg. Phan.* 9: 229. 1840; Paxt., *Pock. Bot. Dict.*, ed. 1, 57 (1840) and ed. 2, 57. 1849; Schnitzl., *Iconogr. Fam. Nat.* 2: 137 *Verbenac.* [2]. 1856; Darby, *Bot. South. States* 475. 1866; Branner & Coville, *Ann. Rep. Geol. Surv. Ark.* 1888 (4): [List Pl. Ark.] 211. 1891; Britton & Br., *Illustr. Fl.*, ed. 1, 3: 74, 531, & 575, fig. 3068. 1898; Diels, *Fl. Cent.-China* 548. 1902; C. K. Schneid., *Illustr. Handb. Laubholz.* 2: Reg. 20. 1912; Britton & Br., *Illustr. Fl.*, ed. 2, imp. 1, 3: 99, 567, 622, & 631, fig. 3563. 1913; R. W. Harper, *Torreya* 20: 75. 1920; Hubert, *Trav. Lab. Mat. Méd. Paris* 13 (4): 65. 1921; E. J. Palmer, *Journ. Arnold Arb.* 2: 216—232. 1922; Clute, *Am. Botanist* 33: [111]—112. 1927; Wangerin in Just, *Bot. Jahresber.* 50 (1): 144 (1929) and 40 (1): 146. 1930; W. Trelease, *Wint. Bot.*, ed. 3, imp. 1, 333. 1931; E. D. Merr., *Trans. Am. Phil. Soc.*, ser. 2, 24 (2): [Comm. Lour.] 332 & 418. 1935; Wangerin in Just, *Bot. Jahresber.* 55 (1): 834. 1935; Britton & Br., *Illustr. Fl.*, ed. 2, imp. 2, 3: 99, 567, 622, & 631, fig. 3563. 1936; Oertel, *U. S. Dept. Agr. Circ.* 554: 21 & 36. 1939; W. Trelease, *Fl. Mat. Decorat. Gard. Woody Fl.*, ed. 5, imp. 1, 145. 1940; Britton & Br., *Illustr. Fl.*, ed. 2, imp. 3, 3: 99, 567, 622, & 631, fig. 3563. 1943; E. L. D. Seymour, *New Wise Gard. Encycl.*, ed. 3, 211 (1944) and ed. 4, 211. 1946; Britton & Br., *Illustr. Fl.*, ed. 2, imp. 4, 3: 99, 567, 622, & 631, fig. 3563. 1947; Harkness, *Plants & Gardens* 20: 8. 1951; Martin, *Zim. & Nels.*, *Am. Wildlife & Pl.*, imp. 1, 360 & 487. 1951; E. L. D. Seymour, *New Wise Gard. Encycl.*, ed. 5, 211. 1951; Van der Sal, *Ornament. Am. Shrubs* 50, 259, & 260, pl. 67. 1952; Weiss & O'Brien, *Ind. Pl. Diseases U. S.* 5: 1174. 1953; Jacobs & Burlage, *Ind. Pl. N. C.* 221 & 234. 1958; Martin & Barkley, *Seed Ident. Man.* 115, fig. 261, pl. 729. 1961; Martin, *Zim. & Nels.*, *Am. Wildlife & Pl.*, imp. 2, 360 & 487. 1961; Anon., *Fl. Highlands Hammock State Park* 11. 1962; J. F. Morton, *Wild Pl. Surviv. S. Fla.* 27. 1962; E. L. D. Seymour, *New Wise Gard. Encycl.*, ed. 6, 211 (1963) and ed. 7, 211. 1964; Harkness, *Handb. Flow. Shrubs, imp. 1*, 8. 1964; W. Trelease, *Wint.*

Bot., ed. 3, imp. 2, 333. 1967; Dean, Trees & Shrubs Heart Dixie, ed. 2, 210, fig. 395. 1968; W. Trelease, Pl. Mat. Decorat. Gard. Woody Pl., ed. 5, imp. 2, 145. 1968; Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl. 714. 1969; Hardin & Arena, Human Poison. Nat. & Cult. Pl. 128. 1969; G. W. Thomas, Tex. Pl. Ecolog. Summ. 77. 1969; Bean, Trees & Shrubs Hardy Brit. Isls., ed. 8, 1: 470. 1970; Britton & Br., Illustr. Fl., ed. 2, imp. 5, 3: 99, 567, 622, & 631, fig. 3563. 1970; Harkness, Handb. Flow. Shrubs, imp. 2, 8. 1970; Hogg & Orr, Hort. Abstr. 40: 515. 1970; E. L. D. Seymour, New Gard. Encycl., ed. 8, 211. 1970; E. C. Walker, Newsletter. Arb. Barnes Found. 4: 5. 1970; Bostick, Castanea 36: 206. 1971; R. C. Clark, Ann. Mo. Bot. Gard. 58: 231 & 232, map 67. 1971; S. Ell., Sketch, imp. 3, 1: 199. 1971; Hartwell, Lloydia 34: 386. 1971; Hocking, Excerpt. Bot. A.18: 445. 1971; Long & Lakela, Fl. Trop. Fla. 737 & 932. 1971; Moldenke, Fifth Summ. 1: 20—22, 24, 25, 28, 31, 32, 39, 44, 46, 48, 52, 54, 67, 92—94, 98, 355, 390, 403, 404, 408, 416, 417, 419, & 420 (1971) and 2: 519, 532, & 851. 1971; Moldenke, Phytologia 22: 191, 192, 195, 209, & 290. 1971; Rogerson, Mycologia 63: 1280. 1971; Stalter, Castanea 36: 174. 1971; Wyman, Gard. Encycl., imp. 1, 173—174 (1971) and imp. 2, 173—174. 1972; R. Bailey, Good Housekeep. Ill. Encycl. Gard. 3: 469. 1972; C. A. Br., Wildfls. La. 155, 235—237, 239, & 242. 1972; R. G. & M. L. Br., Woody Pl. Md. 287 & 288. 1972; D. S. & H. B. Correll, Aquat. & Wetland Pl. SW. U. S., imp. 1, 1395. 1972; Encke & Buchheim in Zander, Handwörterb. Pflanzennam., ed. 10, 449. 1970; Farnsworth, Pharmacog. Titles 7 (4): v & 222 (1972) and 7 (10): iv. 1972; Fong, Trojánkova, Trojáneek, & Farnsworth, Lloydia 39: 447. 1972; Hartshorn, Journ. Elisha Mitch. Sci. Soc. 88: 230. 1972; Moldenke, Biol. Abstr. 53: 5255. 1972; Moldenke, Phytologia 23: 427. 1972; P. G. Palmer, Journ. Elisha Mitch. Sci. Soc. 88: 84. 1972; Stalter, Castanea 37: 225 & 300. 1972; Anon., Biol. Abstr. 55 (9): B.A.S.I.C. S.35. 1973; Altschul, Drugs & Foods 245. 1973; Burlage, Wild Flow. Pl. Lakes Country 442. 1973; Gillis, Howard, & Proctor, Rhodora 75: 420—421. 1973; Hocking, Excerpt. Bot. A.21: 116. 1973; Moldenke, Phytologia 25: 225 & 226. 1973; Stalter, Castanea 38: 37. 1973; Barans, Castanea 39: 31. 1974; E. T. Browne, Castanea 39: 183. 1974; D. S. & H. B. Correll, Aquat. & Wetland Pl. SW. U. S., imp. 2, 1395. 1974; Howes, Dict. Useful Pl. 23 & 168. 1974; S. B. Jones, Castanea 39: 137. 1974; León & Alain, Fl. Cuba, imp. 2, 2: 304 & 306. 1974; Michx., Fl. Bor.-Am., ed. 2, imp. 2, 1 [Ewan, Class. Bot. Am. 3]: 95. 1974; Moldenke, Phytologia 28: 427—429 & 433. 1974; J. F. Morton, 500 Pl. S. Fla. 39. 1974; Troncoso, Darwiniana 18: 387—389 & 408, fig. 32 a—g. 1974; J. V. Watkins, Fla. Landscape Pl., ed. 1, imp. 5, 308, 362, & dust-jacket. 1974; D. S. & H. B. Correll, Aquat. & Wetland Pl. SW. U. S., imp. 3, 2: 1395 & 1744. 1975; O. & I. Degener & Pekelo, Hawaii. Fl. Names x.8. 1975; [Farnsworth], Pharmacog. Titles 7, Cum. Gen. Ind. [21]. 1975; Moldenke, Phytologia 31: 375. 1975; Watkins & Sheehan, Fla. Landscape Pl., ed. 2, 347. 1975; Norman, Fla. Scientist 39: 30. 1976; Natl. Cancer Institute Central File. n.d.

Additional & emended illustrations: Britton & Br., Illustr. Fl., ed. 2, imp. 1, 3: 99, fig. 3563 (1913), ed. 2, imp. 2, 3: 99, fig. 3563 (1936), ed. 2, imp. 3, 3: 99, fig. 3563 (1943), and ed. 2, imp. 4, 3: 99, fig. 3563. 1947; Van der Sal, Ornament. Am. Shrubs pl. 67. 1952; Martin & Barkley, Seed Ident. Man. 115, fig. 261, pl. 729. 1961; J. F. Morton, Wild Pl. Surviv. S. Fla. 27. 1962; Dean, Trees & Shrubs Heart Dixie, ed. 2, 210, fig. 395. 1968; Britton & Br., Illustr. Fl., ed. 2, imp. 5, 3: 99, fig. 3563. 1970; C. A. Br., Wild Fls. La. 155 [in color]. 1972; R. G. & M. L. Br., Woody Pl. Md. 288. 1972; Troncoso, Darwiniana 18: [388], fig. 32 a--g. 1974; J. V. Watkins, Fla. Landscape Pl., ed. 1, imp. 5, 308 & dust-jacket [in color]. 1974; Watkins & Sheehan, Fla. Landscape Pl., ed. 2, 347. 1975.

Recent collectors have found this plant growing in sandy soil, in thickets and swampy thickets, open, rocky, or sandy woods, and pine scrubland, at the edges of woods, swamps, or forests, in live oak or oak-hickory woods, pine forests, or outcrop forests, on low hills and dry ridges, along roadsides in oak-pine forests, and in recently logged swamps with Taxodium and Rufacer rubrum. LeDoux & Pries found it in a "bulldozed area" with many palm trees. Hartshorn (1972) tells us that it grows in the "siliceous thermic family of soils associated with the Suffolk Scarp" in North Carolina. Sperry speaks of it as frequent in hardwood forests in Texas; Moore refers to it as "common throughout the area" of Smith County, Texas, and Demaree says that it is common on creek bottoms in Arkansas. Norman (1976) refers to it as "occasional". Collectors have found it growing at altitudes of 50 to 600 feet, fruiting in April and October. Oertel (1939) says that it is used as a honey and pollen plant source in Texas. Fosberg speaks of it as a "shrub, 1 m. tall, cespitose; buds pinkish", and found it to be "occasional in ditch banks in tangled thickets", in bud in June. Brumbach calls it a "loose shrub, 2 m. tall".

In addition to the many vernacular names previously reported by me for this plant in this series of notes, the following have recently come to my attention: "Bermuda-mulberry", "dwarf mulberry", "kalikapa-'anelika", "Mexican currant", and "purple beautyberry".

Morton (1962) asserts that C. americana occurs in Florida mainland hammocks and pinelands. She also says of it: "Fruit edible raw but insipid and belatedly astringent, causing extreme dryness of mouth a few minutes after eating a small quantity. Best picked and eaten singly; the rank odor of the plant makes nibbling of bunches on the stem unpleasant." The Corrells (1972) note that "This is an ornamental shrub worthy of cultivation not only for its beauty but also because it is an attractant to desirable bird life. Its clusters of bright reddish or purplish fruits are much relished by such birds as the robin, mockingbird, catbird and brown thrasher." It may prove of satisfaction to these authors to be assured that the species is [or has been] cultivated, to my personal knowledge, as attested by herbarium specimens, in Alaba-

ma, California, District of Columbia, Florida, Georgia, Kentucky, Massachusetts, New York, North Carolina, Oklahoma, Pennsylvania, Texas, Austria, Belgium, Denmark, England, France, Germany, Italy, Netherlands, Spain, Switzerland, Cuba, Brazil, Peru, Java, and the Hawaiian Islands.

Martin, Zim, & Nelson (1961) assert that the fruit of this plant is eaten by the bobwhite quail, catbird, mockingbird, robin, brown thrasher, towhee, armadillo, and raccoon, the leaves by Attwater wood rats, and the twigs and foliage by white-tailed deer. Van der Sal (1952) records 12 species of birds eating the fruit, especially, he says, the cardinals, thrashers, bobwhites, mockingbirds, and towhees. Dean (1968) personally observed 40 species of birds eating the fruit. Hartwell (1971) affirms that in Mississippi a "cure" was effected by use of the root of this plant in a decoction for skin cancer.

The corolla color of C. americana is described as having been "pink" on H. E. Moore Jr. 853. Dean describes the corollas as "lavender or white" and the fruit as "deep violet-blue". Morton refers to the corollas as "lavender or bluish" and the fruit as "light-purple". Burlage reports the corollas as "pale-pink or white" and the fruit as "reddish-purple"; the Corrells describe the flowers [corollas] as "bluish, pinkish, reddish, or white", the fruit as "rose-pink or lilac to violet or red-purple". According to Baerecke the corollas are "bluish or pink" and the fruit "violet or purple". Bailey refers to the corollas as "bluish or pink" and the fruit "bright-purple", while according to Lawrence and Brumbach the fruits are "violet" and to Moore they are "pink-purple". Smith reports the corollas as "whitish" and D'Arcy describes the fruit as "showy purple berries" [they are actually drupes].

Weiss & O'Brien list the following fungi as parasitic on C. americana: Atractilina callicarpae Dearn. & Barth. (on leaves) in Florida; Botryosphaeria callicarpae Cke. (B. ribis Gross. & Dig.) (on stems) in South Carolina and Georgia; Cercospora calli-carpae Cke., a leaf-spot, from South Carolina to Texas; Coniothyrium callicarpae Cke. (on stems) in South Carolina; Meliola cookeana Speg., a black mildew, from Florida to Louisiana and Texas; Nectria cinnabarina Tode (on stems) in Alabama; and Phy-salospora obtusa (Schw.) Cke. (on stems) in South Carolina. Rogerson (1971) adds Mycena spp. Watkins & Sheehan (1975) report that "caterpillars may chew the leaves".

Stalter (1972, 1973) records C. americana from Colleton and Georgetown Counties and Outer Otter and Turtle Islands, South Carolina; Hartshorn (1972) records it from Beaufort and Franklin Counties, North Carolina; Bostick (1971) found it in Henry and Rockdale Counties, Georgia; and Browne (1974) encountered it in Stone County, Arkansas, while Barans (1971) found it in James City County, Virginia. Gillis and his associates (1973) cite Proctor 30769 from Abaco and North Andros in the Bahamas.

Rauschel (1797) attributes it to "Iava" [=Java], but this undoubtedly refers to C. candicans (Burm. f.) Hochr.

Additional citations: VIRGINIA: James City Co.: F. R. Fosberg 44419 (W-2743977). Lancaster Co.: Allard 21755 (W-2099612); L. C. Smith 5548 (W-2098252). Norfolk Co.: F. R. Fosberg 34757 (W-2681114). Northampton Co.: Canby 5699 (Tu-92747). County undetermined: Canby s.n. [Herb. Hance 4362] (Pd). NORTH CAROLINA: Anson Co.: Boyce 1042 (Bl-60940). Beaufort Co.: Moore & Woods s.n. [Aug. 1, 1948] (Bl-87497). Carteret Co.: Fix & Whitford 1108 (Bl-56187). Chatham Co.: Ramseur & Hammond 2338 (Bl-150278). Hertford Co.: Woods & Moreland BW.043 (Bl-87496). Roanoke Island: P. O. Schallert 64, in part (Tu-146855). SOUTH CAROLINA: Jasper Co.: Leonard & Radford 1931 (Tu-179680). Orangeburg Co.: J. A. Churchill s.n. [8 April 1969] (Ln-224189). GEORGIA: Baker Co.: Moldenke & Moldenke 26891 (Ac). Coweta Co.: Moldenke & Moldenke 29304a (Ac). Jeff Davis Co.: A. R. Moldenke 352 (Tu-160233). Pike Co.: Sheehan s.n. [Oct. 11, 1953] (Ba). FLORIDA: Alachua Co.: D'Arcy 2202 (Sd). Clay Co.: Moldenke & Moldenke 29847 (Ac). Collier Co.: Moldenke & Moldenke 29626 (Gz, Tu); Utley & Utley 3 (N). Dade Co.: J. A. Churchill s.n. [15 March 1956] (Ln-216700); Collector undetermined 1519 (Tu-79041); Gilbert 1113 (Tu-79040). Hendry Co.: LeDoux & Pries 316 (N). Hernando Co.: Moldenke & Moldenke 29500 (Ld). Holmes Co.: R. R. Smith 1515 (Sd-74186). Lake Co.: Moldenke & Moldenke 29801 (Kh); Nash 725 (Ba). Putnam Co.: Moldenke & Moldenke 29819 (Ld). Seminole Co.: P. O. Schallert 64, in part (Bl-88090). Key Largo: S. R. Hill 815 (N). Sanibel Island: Brumbach 8678 (N). ALABAMA: Baldwin Co.: Dress & Read 7839 (Ba). County undetermined: Buckley s.n. [Herb. Hance 4362] (Pd). ARKANSAS: Garland Co.: Demaree 37077 (Ba). IZARD Co.: R. D. Thomas 8668 (Kl-11523), 16247 (Bl-244492). Perry Co.: Demaree 35656 (Ba). Pulaski Co.: Demaree 38083 (Ba). Sevier Co.: Beilfuss 140 (Tu-129501). LOUISIANA: Ouachita Par.: R. D. Thomas 2836 (Kl-10285); Whitam T-110 (Bl-244491). OKLAHOMA: Marshall Co.: Waterfall 12299 (Mi, Tu-123777). Sequoyah Co.: C. S. Wallis 7996 (Ba). TEXAS: Comal Co.: Lindheimer 1067 (Tu-92748). Dallas Co.: C. L. Lundell 13930 (Mi). Freestone Co.: Lundell & Lundell 12939 (Mi). Harris Co.: G. L. Fisher s.n. [June 14, 1947] (Bl-253605), s.n. (Tu-107987). Montgomery Co.: Sperry 3030 (Tu-170945). Smith Co.: H. E. Moore Jr. 578 (Ba), 853 (Ba). Tarrant Co.: A. Ruth 1333 (Ba). Tyler Co.: Tharp, Gimbrede, & Yang 51-1465 (Bl-81758). CULTIVATED: Florida: G. H. M. Lawrence 1189 (Ba).

CALLICARPA AMERICANA var. LACTEA F. J. Muller

Additional bibliography: W. Trelease, Pl. Mat. Decorat. Gard.

Woody Pl., ed. 5, imp. 1, 145. 1940; E. L. D. Seymour, New Gard. Encycl., ed. 3, 211 (1944), ed. 4, 211 (1946), ed. 5, 211 (1951), ed. 6, 211 (1963), and ed. 7, 211. 1964; W. Trelease, Pl. Mat. Decorat. Gard. Woody Pl., ed. 5, imp. 2, 145. 1968; G. W. Thomas, Tex. Fl. Ecol. Summ. 77. 1969; E. L. D. Seymour, New Gard. Encycl., ed. 8, 211. 1970; Moldenke, Fifth Summ. 1: 22, 24, 26, 28, 31, 46, 48, 54, 355, 404, & 411 (1971) and 2: 851. 1971; Moldenke, Phytologia 22: 192. 1971; Wyman, Gard. Encycl., imp. 1, 173-174 (1971) and imp. 2, 173-174. 1972; R. Bailey, Good Housekeep. Ill. Encycl. Gard. 3: 469. 1972; R. G. & M. L. Br., Woody Pl. Md. 287. 1972; D. S. & H. B. Correll, Aquat. & Wetland Pl. SW. U. S., imp. 1, 1395 (1972) and imp. 2, 2: 1395 & 1744. 1975.

Bailey (1972) tells us that this variety is "especially effective when planted with the purple". The Corrells (1972) assert that it is found in sandy open woods in eastern Texas, "also N. C. to Fla.; sometimes cult."

#### CALLICARPA AMPLA Schau.

Additional bibliography: Moldenke, Fifth Summ. 1: 104, 106, & 424 (1971) and 2: 851. 1971; Moldenke, Phytologia 22: 192. 1972; Little, Woodbury, & Wadsworth, Trees P. R. & Virg. Isls. 2 [U. S. Dept. Agr. Agric. Handb. 449]: xii, 854, 856, 857, 997, & 1016, fig. 679. 1974.

Additional illustrations: Little, Woodbury, & Wadsworth, Trees P. R. & Virg. Isls. 2 [U. S. Dept. Agr. Agric. Handb. 449]: 857, fig. 679. 1974.

Holdridge describes this plant as 15 feet tall, the stems 3 inches in diameter at breast height, the fruits "whitish with [a] tinge of purple, possibly not fully mature" in September. Little and his associates (1974) refer to this plant as "capá rosa" and describe it as a "rare shrub or medium-sized tree known only from the wet forests of Puerto Rico.....in the mountains....from Luquillo to near Cayey and Utuado.....Recorded long ago from St. Thomas". They record a second common name, "péndula cimarrona".

Additional citations: PUERTO RICO: Holdridge LBH.245 [Herb. Forest Serv. 99355] (W-2761770).

#### CALLICARPA ANGUSTA Schau.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 569. 1941; Moldenke, Phytologia 22: 192. 1971; Moldenke, Fifth Summ. 1: 314 & 404 (1971) and 2: 851. 1971.

Additional citations: PHILIPPINE ISLANDS: Luzon: Edaffo s.n. [Herb. Philip. Bur. Sci. 78610] (Ba); Ramos & Edaffo s.n. [Herb. Philip. Bur. Sci. 46829] (Pd).

#### CALLICARPA ANGUSTIFOLIA King & Gamble

Additional bibliography: Moldenke, Phytologia 22: 192. 1971; Moldenke, Fifth Summ. 1: 294, 304, 320, & 329 (1971) and 2: 851. 1971.

Burkill (1966) records the vernacular name, "tambang bési", for this species in Malaya -- the first part of the name indicating

that the plant is used for making medicinal plasters. He notes that "there can be no doubt that considerable reliance has been put on them [this and other species of the genus] as simples, from end to end of Malaysia." Larsen and his associates describe the species as a tree, 6--7 m. tall, with white flowers, and found it growing in evergreen forests on limestone soil along streams, at 100--300 m. altitude, in Thailand, flowering in May, July, September, and October, fruiting in July and from September to November. Other recent collectors refer to it as a spreading shrub or shrublet, 1 m. tall, 3--4 m. in circumference, the leaves "glaucous and puberulent" or cinereous or "grayish nearly white" beneath or "young leaves and lower surface of older ones with light-brown powdery scales", the innovations pale ferruginous-pubescent, the stems with a mealy-brown pubescence, the calyx brown, stamens yellow, and fruit green when young, purple, dark black-purple, or black when mature, drying black-brown. Stone refers to the fruits as "berries", but they are drupes. The corollas are said to have been "pale-pink" on B. C. Stone 5896, "pinkish" on Chung 443, "deep-pink" on B. C. Stone 6926, and "purple-pink" on Chung 341. They have found it growing in partial shade on limestone hills and in rocky ground with a thin soil cover at the summit of hills. Stone refers to it as "locally common in crevices and gullies" in Selangor. In Malaya it has been collected at 10--350 meters altitude.

Additional citations: THAILAND: Larsen, Larsen, Nielsen, & Santisuk 31243 (Ac, Ld), 32464 (Ac, Ld). MALAYA: Pahang: Chin 1067 (Kl--19920); Chung 443 (Kl--19921). Selangor: Chung 341 (Kl--19917), 471 (Kl--19918); B. C. Stone 5896 (Kl--5628), 11075 (Kl--17704). MALAYAN ISLANDS: Langkawi: B. C. Stone 6926 (Kl--7792).

#### CALLICARPA ARBOREA Roxb.

Additional synonymy: Callicarpa squamosa Blume ex Moldenke, Phytologia 28: 454, in syn. 1974.

Additional & emended bibliography: Part., Pock. Bot. Dict., ed. 1, 57 (1840) and ed. 2, 57. 1849; Gamble, Man. Indian Timb., ed. 2, imp. 1, 525. 1902; Brandis, Indian Trees, imp. 1, 511--512. 1906; Heyne, Nutt. Fl. Ned.-Ind., ed. 1, 4: 107. 1917; Gamble, Man. Indian Timb., ed. 2, imp. 2, 525. 1922; Wangerin in Just, Bot. Jahresber. 51 (1): 553 [519]. 1923; Osmaston, Forest Fl. Kumaon 407--408. 1927; Fedde & Schust. in Just, Bot. Jahresber. 53 (1): 1071 [1053]. 1932; Fedde in Just, Bot. Jahresber. 51 (2): 265. 1933; Kanjilal, Das, Kanjilal, & De, Fl. Assam 3: 462, 463, & 545. 1939; Biswas, Indian Forest Rec., ser. 2, Bot. 3: 41. 1941; Banerji, Rec. Bot. Surv. India 19: 74. 1965; Gausson, Legris, & Viart, Ind. Council. Agr. Res. Map Ser. 2: 31 & 33. 1965; Chaudhuri, Bull. Bot. Soc. Bengal 23: 119. 1969; Rao & Verma, Bull. Bot. Surv. India 11: 410. 1969; Sharma & Ghosh, Bull. Bot. Soc. Bengal 24: 53. 1970; Bhakumi, M. L. & M. M. Dhar, Dhawan, Gupta, & Srimal, Indian Journ. Exp. Biol. 9: 93 & 101. 1971; Brandis, Indian Trees, imp. 2, 511--

512. 1971; Moldenke, Fifth Summ. 1: 267, 269, 271, 272, 282, 284, 285, 294, 298, 304, 307, 314, 320, 355, 405, 411, & 418-420 (1971) and 2: 851. 1971; Rativanich & Dietrichs, Nat. Hist. Bull. Siam Soc. 24: 147. 1971; Moldenke, Phytologia 22: 192-193, 209, 281-283, & 286-292 (1971) and 23: 428. 1972; Gamble, Man. Indian Timb., ed. 2, imp. 3, 525. 1972; Stainton, Forests Nepal xiv & 75, fig. 87. 1972; Farnsworth, Pharmacog. Titles 8 (1): iii. 1973; Moldenke, Phytologia 28: 443 & 454. 1974; Balgooy, Pacif. Pl. Areas 3: 244. 1975.

Additional illustrations: Stainton, Forests Nepal fig. 87 (in color). 1972.

Additional vernacular names reported for this species include "arhi-arong", "bormola", "dhola-uja", "dieng-lakhiot", "gumola", "hu-khwai", "khimbar", "kumhār", "mach-kotta", "mach-peluka", "mai-phai", "maiphi", "maiphi-thing", "maksī", "maskhanchi", "mojonthi-phang", "mukhuang", "phoja", "saiom", "selu", and "yarpphu-changne".

Recent collectors describe the plant as "shrubby, to 12 feet [tall]", a "large shrub, 5 m. [tall]", or as a tree, 3-10 m. tall, with a trunk circumference of 12-38 cm. at breast height, the outer bark dirty greenish-brown, the under surface light-brown, the under bark mid-brown, the inner bark white, the wood creamy-brown, darkening slightly on exposure to air, the leaves dark-green and glossy above, light-green beneath and covered with thickly matted gray-brown hairs, the flower-buds light-green, and the perianth white. They have found it growing on hillsides, on or near limestone, in marshland, swamp forests, disturbed dry dipterocarp forests, and "scattered" in evergreen forests, at an altitude of 50 m., flowering in February and March.

The corollas on A. Henry 12093 are described as having been "lilac" in color, those on Chin 844 were "blue", those on B. C. Stone s.n. [28-2-1970] were "pink", and those on Ahmad & Sidek SA.585 were "purplish-blue", while those on Sangkachand, Phusomsaeng, & Nimanong 1077 were "purple". Geesink and his associates refer to the corolla, stamens, and style as all "violet".

Kanjilal and his associates (1939) refer to the species as "common throughout the Province [Assam]. Poles are used as rollers of Synteng looms. Bark is chewed with betel leaf. Leaves are fodder for buffaloes. The species has a tendency to become gregarious, apparently very useful in covering bare hills, e.g. in 'jhum med' areas." He asserts that in Assam it flowers from May to October and fruits at the end of the rainy season and cold season. Rativanich & Dietriche (1971) report the bark used in the treatment of leprosy. Banerji (1965) describes it as a tree with a thick trunk, leaves ovate to oblong, tomentose beneath, and flowers pale-purple, reporting it as "common". He cites Banerji 459 from Nepal. Osmaston (1927) reports that in Kumaon it "occurs throughout the area up to 4,000 feet. Fairly common in the Bhabar and outer hill ranges. Flowers: April-June and prob-



ably October. Fruit: August and December—January."

Material of C. arborea has been misidentified and distributed in some herbaria as C. maingayi King & Gamble.

Additional citations: NEPAL: Wallich 1826/1 (Pd). SIKKIM: J. D. Hooker s.n. [2—4000 ped.] (Pd); T. Thomson s.n. [1857] (Pd). INDIA: Assam: Jenkins s.n. (Pd); Prain's collector s.n. [Margarata] (Pd). Khasi States: Hooker & Thomson s.n. [0—4000 ped.] (Pd). BANGLADESH: Griffith 6037 (Pd); Majumder & Islam MADw. 24529 (Ws, Ws); Wallich 1826/2 (Pd). BURMA: Tenasserim: Falconer 37 (Pd). CHINA: Yunnan: A. Henry 12093 (E—106959). THAILAND: Charoenphol, Larsen, & Warncke 3497 (Ac); Geesink, Phanichapol, & Santisuk 5617 (Ac); Larsen, Larsen, Nielsen, & Santisuk 30966 (Ac, Ld); Sangkachand, Phusomsaeng, & Nimanong 1077 (Ac). MALAYA: Kedah: B. C. Stone s.n. [28—2—1970] (KL—12732). Perak: Ahmad & Sidek SA.585 (KL—15058); Chin 809 (KL—19922), 844 (KL—15298). GREATER SUNDA ISLANDS: Sumatra: Boeea 8244 (W—2275201). NEW GUINEA: Papua: Isles & Vinas NGF.32406 (Mu). CULTIVATED: Hawaiian Islands: F. Brown 1276 (Ba). LOCALITY OF COLLECTION UNDETERMINED: Collector undetermined s.n. [Sembar, 7th June 1882] (Pd).

#### CALLICARPA ARBOREA var. OBLONGIFOLIA Kanjilal

Bibliography: Kanjilal, Das, Kanjilal, & De, Fl. Assam 3: 463. 1939; Bhakuni, M. L. & M. M. Dhar, Dhawan, Gupta, & Srinial, Indian Journ. Exp. Biol. 9: 93. 1971; Farnsworth, Pharmacog. Titles 8 (1): iii. 1973; Moldenke, Phytologia 29: 443. 1974.

This trinomial appears in the 1939 work cited above as a nomen nudum in a list of plants found in Assam. In the index to the work it seems to be referred to as Callicarpa oblongifolia, but whether this is meant to be a reference to C. oblongifolia Hassk. is not obvious. Hasskarl's name is now usually placed in the synonymy of C. longifolia f. floccosa Schau., a plant which is known from Assam.

#### CALLICARPA ARBOREA var. PSILOCALYX (H. J. Lam) Moldenke

Additional bibliography: Fedde & Schust. in Just, Bot. Jahrbuch. 53 (1): 1071 [1053] (1932) and 60 (2): 570. 1941; Moldenke, Fifth Summ. 1: 314, 405, 411—414, & 419 (1971) and 2: 520 & 851. 1971; Moldenke, Phytologia 22: 193, 209, 281, 286—289, & 292 (1971) and 23: 428. 1972.

Fedde & Schuster (1932) regard C. sorsogonensis Elm. as a synonym of this taxon, but I regard it as belonging to the synonymy of Geunsia paloënsis (Elm.) H. J. Lam.

#### CALLICARPA AREOLATA Urb.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahrbuch. 53 (1): 1070 [1052]. 1932; Moldenke, Fifth Summ. 1: 94 (1971) and 2: 851. 1971; Moldenke, Phytologia 21: 445. 1971; León & Alain, Fl. Cuba, imp. 2, 2: 205 & 309. 1974.

**CALLICARPA AUSTRALIS** Koidz.

Additional bibliography: Moldenke, *Fifth Summ.* 1: 308 (1971) and 2: 851. 1971; Moldenke, *Phytologia* 21: 445. 1971.

**CALLICARPA BARBATA** Ridl.

Additional & emended bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 57 (2): 401. 1938; Burt, *Notes Roy. Bot. Gard. Edinb.* 29: 151. 1969; Moldenke, *Fifth Summ.* 1: 320 (1971) and 2: 851. 1971; Moldenke, *Phytologia* 22: 193. 1971.

Burt (1969) cites Haviland 2043 and Richards 1210, both at Kew, from Sarawak, and comments that "At the time Bakhuizen examined this material (1934) C. barbata was evidently unknown to him, for he was driven to suggest that the inflorescences might belong to C. involucrata Merr., the leaf to the (then unpublished) C. kinabaluensis Bakh. f. & Heine. The species described by Ridley is, however, clearly a good and distinct one, allied to C. involucrata in its fasciculate flowers. The much bigger leaf also differs from that of C. involucrata in its indumentum of dendroid hairs. For further discussion see under C. anomala above."

Soepadmo and his associates describe this species as a small tree, 12 feet tall, the trunk with a 1-inch girth, the "flowers cauliflorous about 6 inches above the ground", the calyx, corolla, and filaments white, the 5 anthers yellow, and the pistil white. They encountered it in disturbed primary forests near a stream, at 250 feet altitude, flowering in April.

Citations: GREATER SUNDA ISLANDS: Sarawak: Soepadmo, Smith, & Chai S.27626 (K1--13939, Z).

**CALLICARPA BASILANENSIS** Merr.

Additional bibliography: H. N. Ridl., *Kew Bull. Misc. Inf.* 1929: 260. 1929; Moldenke, *Fifth Summ.* 1: 314 (1971) and 2: 851. 1971; Moldenke, *Phytologia* 21: 330 (1971) and 22: 293. 1971.

**CALLICARPA BASITRUNCATA** Merr.

Additional bibliography: Moldenke, *Fifth Summ.* 1: 291 (1971) and 2: 851. 1971; Moldenke, *Phytologia* 21: 330. 1971.

**CALLICARPA BAVIENSIS** Moldenke

Additional bibliography: Moldenke, *Fifth Summ.* 1: 299 (1971) and 2: 851. 1971; Moldenke, *Phytologia* 21: 330. 1971.

**CALLICARPA BICOLOR** A. L. Juss.

Additional bibliography: Pételot, *Pl. Méd. Camb. Laos & Viet.* 2: 246 (1954) and 4: 91. 1954; Moldenke, *Fifth Summ.* 1: 314, 320, 329, & 331 (1971) and 2: 851. 1971; Moldenke, *Phytologia* 22: 193. 1971.

Pancho describes this plant as a shrub, to 4 m. tall, the corollas purple, pale-purple, or lavender, about 3 mm. long, the fruit fleshy, globose, blue or pale-lavender to purple or black, to 5 mm. in diameter, common in open areas at low elevations "throughout the Philippines, highly ornamental, but rarely culti-

vated". He found it in flower and fruit in August and refers to the fruit as "berries" although they actually are drupes.

Additional citations: PHILIPPINE ISLANDS: Luzon: Loher 4444 (Mu--3925); Pancho 1064 (Ba), 2192 (Ba); Pancho & Pilgar 56 (Ba). Panay: Edaffo s.n. [Herb. Philip. Bur. Sci. 46162] (Pd).

CALLICARPA BICOLOR var. BERMEJOSI Moldenke

Additional bibliography: Moldenke, Fifth Summ. 1: 314 (1971) and 2: 851. 1971; Moldenke, Phytologia 20: 496. 1971.

CALLICARPA BICOLOR var. SUBINTEGRIFOLIA Moldenke

Additional bibliography: Moldenke, Fifth Summ. 1: 314 (1971) and 2: 851. 1971; Moldenke, Phytologia 20: 496. 1971.

CALLICARPA BODINIERI Léveillé

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 53 (1): 1070. 1932; B. Blackburn, Trees & Shrubs East. N. Am. 103. 1952; Bean, Trees & Shrubs Hardy Brit. Isls., ed. 8, 468--470. 1970; Moldenke, Fifth Summ. 1: 285, 355, 405, 408, 409, & 417 (1971) and 2: 851. 1971; Moldenke, Phytologia 22: 193 & 284. 1971; Wyman, Gard. Encycl., imp. 1, 174 (1971) and imp. 2, 174. 1972; R. Bailey, Good Housekeep. Ill. Encycl. Gard. 3: 468 & 469. 1972; Encke & Buchheim in Zander, Handwörterb. Pflanzennam., ed. 10, 149. 1972; Fletcher in Hillier, Man. Trees & Shrubs, ed. 2, 51 (1972) and ed. imp., 51. 1972; Moldenke, Phytologia 23: 428. 1972; F. Perry, Fls. World 303, 304, & 313. 1972; Seabrook, Shrubs for Gard., ed. 1, 36. 1973; R. D. Gibbs, Chemotax. Flow. Pl. 3: 1753 & 1754 (1974) and 4: 2064. 1974; Harkness, Seedlist Handb. 38. 1974; Seabrook, Shrubs for Gard., ed. 2, 11, 36, & [145]. 1975.

Fletcher (1972) describes this plant as a "Medium-sized shrub with long leaves and deep lilac fruit. Foliage deep rose-purple in autumn" and tells us that it is native to central and western China, introduced into cultivation "about 1845". Horticultural-ly it is called the "Bodinier beautyberry".

Gibbs (1974) reports that the HCl/methanol test gave negative results in this species; also that syringin is not present in the stems.

CALLICARPA BODINIERI var. GIRALDII (Hesse) Rehd.

Additional synonymy: Callicarpa giraldii "Hesse ex Rehd." apud Encke & Buchheim in Zander, Handwörterb. Pflanzennam., ed. 10, 149, in syn. 1972. Callicarpa bodinieri var. giraldii (Hesse ex Rehd.) Rehd. apud Encke & Buchheim in Zander, Handwörterb. Pflanzennam., ed. 10, 149. 1972.

Additional & amended bibliography: C. K. Schneid., Illustr. Handb. Laubholz. 2: 1048 & Reg. 20. 1912; Stipp, Gartenwelt 29: 49--50. 1925; Wangerin in Just, Bot. Jahresber. 53 (2): 645 (1925) and 46 (1): 717. 1926; Fedde in Just, Bot. Jahresber. 46 (2): 561. 1929; E. L. D. Seymour, New Gard. Encycl., ed. 3, 211 (1944), ed. 4, 211 (1946), ed. 5, 211 (1951), and ed. 7, 211.

1964; Fogg, Concise Guide Shrubs 22. 1969; Barbey, Arbor. Ornament., ed. 4, 65. 1970; Bean, Trees & Shrubs Hardy Brit. Isls., ed. 8, 1: 468--469. 1970; E. L. D. Seymour, New Gard. Encycl., ed. 8, 211. 1970; Moldenke, Fifth Summ. 1: 269, 286, 291, 308, 355, 405, 409, 412, & 414 (1971) and 2: 851. 1971; Moldenke, Phytologia 22: 193--194. 1971; R. Bailey, Good Housekeep. Ill. Encycl. Gard. 3: 468 & 469. 1972; Encke & Buchheim in Zander, Handwörterb. Pflanzennam., ed. 10, 149 & 150. 1972; Fletcher in Hillier, Man. Trees & Shrubs, ed. 2, 51 (1972) and ed. imp., 51. 1972; F. Perry, Fls. World 303, 304, & 313. 1972; Skinner, Ornament. Pl. Coastal Northw. 75. 1972; Anon., Ind. Sem. Agrartud. Egypt. Gödöllő [Hungary] 1973: 19. 1973; Seabrook, Shrubs for Gard., ed. 1, 36. 1973; Harkness, Seedlist Handb. 38. 1974; Seabrook, Shrubs for Gard., ed. 2, 11, 36, & [145]. 1975.

Additional illustrations: Bean, Trees & Shrubs Hardy Brit. Isls., ed. 8, 1: 469. 1970; R. Bailey, Good Housekeep. Ill. Encycl. Gard. 469 (in color). 1972; F. Perry, Fls. World 304 (in color). 1972; Seabrook, Shrubs for Gard., ed. 1, 36 (1973) and ed. 2, 36 (in color). 1975.

Bailey (1972) says that "These plants are grown chiefly for the uniquely colorful berries that appear in the fall and last after the leaves have fallen. Stems may sometimes be winter-killed in the North [of the U. S. A.], but new growth from the base will flower and fruit the same year. Sun and rich soil are needed. Propagate by seeds, layers or cuttings. May be grown also in airy, bright greenhouse." Seabrook (1973) remarks that "Quite remarkable berries [they are drupes!] are the feature of Callicarpa and the most popular garden species is Callicarpa bodinieri giraldii. The lilac flowers produced in July, although insignificant, are followed by dense clusters of lilac to pale purple fruits, like small evenly coloured pearls, from September to Christmas. The dull pale green leaves turn yellow and red, tinged with purple, in autumn. This shrub, which reaches 2 metres in height, is best used in mixed shrubberies and sited where it will receive some protection from hard frosts. Pruning consists of nothing more than removing branches to retain shape and cutting out old wood. This should be carried out in early spring." Fletcher (1972) calls it "A medium sized to large shrub with long, scurfy pubescent stems and elliptic to lanceolate long-pointed leaves. Flowers lilac, produced during late summer, and followed by masses of small dark lilac or pale violet fruits." He gives its original home as eastern to western China and asserts that it was introduced into cultivation about the year 1900.

Blackburn (1952) distinguishes this variety from the typical form of the species as follows: C. bodinieri has the "Shoots, flower- and fruit-clusters, and the leaves beneath rather densely set with round tufts of hair (China)"; C. bodinieri var. giraldii has the "Young growth set with tufts of hair but not densely so, and few persisting as the growth matures (natural variety, sc China)". He refers to it as the "Giraldi beautyberry".

It is worthy of note here that the July 15, 1941, collection

of R. B. Clarke A.A.22193 is said to have had "fruit blanched, in dense clusters but rare". The E. J. Palmer collection is said to have been taken from plants grown from seed of R. B. Clark 6712.

Additional citations: CULTIVATED: Massachusetts: R. B. Clark 6712 [Oct. 17, 1940] (Ba), 6712 [July 2, 1941] (Ba), A.A.22193 [Oct. 17, 1940] (Ba), A.A.22193 [July 15, 1941] (Ba); E. J. Palmer s.n. [July 27, 1936] (Ba).

CALLICARPA BODINIERI var. LYI (Léveillé) Rehd.

Synonymy: Callicarpa bodinieri var. lyu (Léveillé) Rehd. ex Moldenke, Phytologia 22: 194, sphalm. 1971.

Additional bibliography: Moldenke, Fifth Summ. 1: 286 & 413 (1971) and 2: 852. 1971; Moldenke, Phytologia 22: 194 (1971) and 23: 428. 1972.

CALLICARPA BODINIERI var. ROSTHORNII (Diels) Rehd.

Additional bibliography: Diels, Fl. Cent.-China 548. 1902; Moldenke, Fifth Summ. 1: 286, 409, & 413 (1971) and 2: 852. 1971; Moldenke, Phytologia 22: 194. 1971.

CALLICARPA BORNEENSIS Moldenke

Additional bibliography: Moldenke, Fifth Summ. 1: 320 (1971) and 2: 852. 1971; Moldenke, Phytologia 21: 331. 1971.

CALLICARPA BRACTEATA Dop

Additional bibliography: Moldenke, Fifth Summ. 1: 299 (1971) and 2: 852. 1971; Moldenke, Phytologia 21: 331. 1971.

CALLICARPA BREVIPES (Benth.) Hance

Additional bibliography: M. A. Martin, Introd. Ethnobot. Camb. 141-142. 1971; Moldenke, Fifth Summ. 1: 286, 291, 293, 299, 355, 405, 407, 412, & 413 (1971) and 2: 852. 1971; Moldenke, Phytologia 22: 194 (1971) and 31: 389. 1975.

Hu describes this plant as a shrub, 3 m. tall, with purple fruit, and found it in fruit in November. Martin (1971) records the vernacular name, "daəm sɔŋkae prey", saying that the second part of this name "est le nom donné à Combretum quadrangulare allusion à la ressemblance morphologique qui existe entre les feuilles des deux especes". He also records "daəm kɔŋ a" and describes the plant as an "Arbrisseau de forêt dense", found at 500 m. altitude, commenting that "Les feuilles, tout comme celles de Combretum quadrangulare....servant de papier à cigarettes." He gives its overall distribution as Cambodia, Vietnam, China, Hainan, and Hong Kong.

The S. Y. Hu 7323 & 10926, distributed as C. brevipes, seem, rather, to represent f. serrulata although the teeth on their leaves are very obscure.

Additional citations: HONG KONG: Hance 334 (Pd); S. Y. Hu 9003 (W-2711732).

## CALLICARPA BREVIPES f. ANNAMENSIS Moldenke

Additional bibliography: Moldenke, *Phytologia* 14: 221. 1967; Moldenke, *Fifth Summ.* 1: 299 (1971) and 2: 852. 1971.

## CALLICARPA BREVIPES var. DENTOSA Chang

Additional bibliography: Moldenke, *Fifth Summ.* 1: 286 & 407 (1971) and 2: 852. 1971; Moldenke, *Phytologia* 22: 194. 1971.

## CALLICARPA BREVIPES var. OBOVATA Chang

Additional bibliography: Moldenke, *Fifth Summ.* 1: 291 (1971) and 2: 852. 1971; Moldenke, *Phytologia* 20: 499. 1971.

## CALLICARPA BREVIPES f. SERRULATA P'ei

Additional bibliography: Moldenke, *Fifth Summ.* 1: 286, 291, 293, & 405 (1971) and 2: 852. 1971; Moldenke, *Phytologia* 22: 194 (1971) and 31: 389. 1975.

Hu describes this plant as a rounded shrub, 1—1.5 m. tall, or a small tree, 2.5 m. tall, the "sepals purple" and corolla white, and the fruit at first green, then turning purple, globose. He found it in flower in May and in fruit in July and August. The teeth on the leaves of Hu 10926 are very small and obscure.

Additional citations: CHINESE COASTAL ISLANDS: Lantau: S. Y. Hu 10757 (W—2731781). HONG KONG: Hance 334 (Pd); S. Y. Hu 7323 (W—2697390), 10193 (W—2731726), 10587 (W—2731834), 10926 (W—2730961).

## CALLICARPA BREVIPETIOLATA Merr.

Additional bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 47 (2): 244 (1927) and 59 (2): 416. 1939; Moldenke, *Fifth Summ.* 1: 267, 272, 320, & 408 (1971) and 2: 852. 1971; Moldenke, *Phytologia* 22: 194 (1971) and 23: 424. 1972.

Larsen and his associates found this plant growing at 1100—1300 m. altitude in Thailand, describe it as a shrub, 2 m. tall, with violet-colored fruit [drupes, not "berries"], and found it in fruit in October.

Additional citations: THAILAND: Charoenphol, Larsen, & Warncke 4213 (Ac), 4812 (Ac).

## CALLICARPA BUCHERI Moldenke

Additional bibliography: Moldenke, *Phytologia* 14: 221. 1967; Moldenke, *Fifth Summ.* 1: 94 & 405 (1971) and 2: 852. 1971; León & Alain, *Fl. Cuba, imp.* 2, 2: 304 & 305. 1974.

## CALLICARPA CANDICANS (Burm. f.) Hochr.

Additional & emended bibliography: Desf., *Tabl. Écol. Bot.*, ed. 2, 64. 1815; Pers., *Sp. Pl.* 1: 342. 1817; Paxt., *Pock. Bot. Dict.*, ed. 1, 57 (1840) and ed. 2, 57. 1849; Dymock, *Veg. Mat. Med. W. India* 745. 1884; Cooke, *Fl. Presid. Bombay*, ed. 1, 3: 423. 1905; E. D. Merr., *Fl. Manila, imp.* 1, 400 & 401. 1912; H. J. Lam in H. Hallier, *Meded. Rijks. Herb. Leid.* 37: 32—33. 1918; Hubert, *Trav. Lab. Mat. Méd. Paris* 13 (4): 64—65. 1921; Fedde & Schust.

in Just, Bot. Jahresber. 47 (2): 244. 1927; Fedde in Just, Bot. Jahresber. 47 (2): 289. 1929; Fedde & Schust. in Just, Bot. Jahresber. 53 (1): 1069 & 1071. 1932; Kloppenburg-Versteegh, Wenk. Raadgev. Betreff. Gebr. Ind. Pl., ed. 4, 88. 1934; E. D. Merr., Trans. Am. Phil. Soc., ser. 2, 24 (2): [Comm. Lour.] 332 & 418. 1935; Wangerin in Just, Bot. Jahresber. 56 (1): 668. 1936; Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 569 & 570. 1941; Pételot, Arch. Recherch. Agron. & Past. Viet. 18: 246. 1953; Pételot, Fl. Méd. Camb. Laos & Viet. 2: 246 (1954) and 4: 61, 91, 229, 231, 241, 261, 268, & 287. 1954; Cooke, Fl. Presid. Bombay, ed. 2, imp. 1, 2: 503. 1958; Kawazu & Mitsui, Tetrahedron Let. 3519. 1966; Cooke, Fl. Presid. Bombay, ed. 2, 2: 503. 1967; Kawazu, Jap. Agr. Res. Quart. 3 (2): 20—24. 1968; E. D. Merr., Fl. Manila, imp. 2, 400 & 401. 1968; Beard, West Austr. Pl., ed. 2, 113. 1970; B. C. Stone, Micronesica 6: [Fl. Guam] 37 & 503—504. 1970; Moldenke, Fifth Summ. 1: 265, 267, 272, 286, 291, 294, 299, 304, 314, 321, 329, 335, 339, 344, 355, 404—409, 412—414, & 417—419 (1971) and 2: 570, 645, 852, & 971. 1971; Moldenke, Phytologia 22: 192, 194—195, 209, 281, 282, & 285. 1971; Altschul, Drugs & Foods 245. 1973; Farnsworth, Pharmacog. Titles 8 (1): iii. 1973; Hegnauer, Chemotax. Pfl. 6 [Chem. Reihe 21]: 670. 1973; Hocking, Excerpt. Bot. A.21: 115 & 117. 1973; Gibbs, Chemotax. Flow. Pl. 3: 1752. 1974; Moldenke, Phytologia 28: 446. 1974; Subramanian, Nair, & Vedantham, Phytochem. 13: 307. 1974.

Beard (1970) describes the stems of this plant as "felty". Altschul (1973), citing Wong 135 from the Caroline Islands, says that there the wood and leaves are used in treating headache and "chicken sickness"; the wood is boiled and used mixed with coconut, then eaten, the leaves are pounded and eaten, the fruit is pounded and put into the eyes. It should be noted, however, that C. candicans is not known from the Caroline Islands; doubtless the plant to which she refers is C. erioclona var. paucinervia (Merr.) Moldenke. The vernacular name, "aakyn", which she records probably also belongs to the latter taxon.

It is of more than passing interest to note how Lam (1918) describes the several varieties and forms which he recognized in C. candicans:

(1) Var. typica -- "Folia membranacea vel subchartacea, late ovata vel ovato-rotundata usque ad fere tetragona, basi in petiolum decurrentia, apice breviter acuminata vel interdum obtusa, adulta supra glabra, subtus dense albido-stellato-tomentosa, basi integra, ceterum serrata, nervis secundariis utrinque circiter 10,7—14 cm longa, 4,5—8 cm lata, petiolo 0,6—2,8 cm longo." For this he cites Gröndler 2409 from Lombok and, from Sumbawa, Elbert 3534, 3568, 3636, 3806, 3897, 3953, & 4137.

(2) Var. sumatrana -- "Folia membranacea vel subchartacea, lanceolato-ovata, basi attenuata integra, apice acuminata, margine denticulata, adulta supra glabra, subtus dense albido-stellato-tomentosa, nervis utrinque 8—10, 6,5—12 (—18,5) cm longa, 3—4,5 (—10) cm lata; petiolo 1—2,5 cm longo; corolla pilis densis

in vittis 4 in lobis positis tecta". For this he cites only Elbert 2538 from Celebes.

(3) Var. latifolia — "Folia valde membranacea, late ovata, nunquam tetragona, basi attenuata, apice longiuscule acuminata, margine ut in var. ♂ [var. typica], vel crenata, vel bidentata, adulta supra glabra, subtus densiuscule stellato-tomentosa, nerviis secundariis utrinque 8—10, 13—19 cm longa, 6—11 cm lata, petiolo 2—3 cm longo."

(4) Var. latifolia f. typica — "Flores tetrameri". For this he cites Elbert 736 & 1992 from Lombok.

(5) Var. dentata — "Folia membranacea vel subchartacea, basi attenuata, apice longiuscule apiculata vel subtruncata, adulta supra glabra, subtus laxiuscule stellato-tomentosa, margine basi integra, ceterum grosse et irregulariter serrato-dentata, nervis secundariis utrunque 7—8, 6,5—15 cm longa, 3—7 cm lata, petiolo 0,7—2 cm longo." For this he cites only Elbert 3505.

I fail to discern any constant keyable characters in any of these subtaxa except var. sumatrana (which see, below).

The initial letter of the specific epithet of C. adenanthera R. Br. is sometimes uppercased, apparently because it is identical with the generic name of a leguminous genus.

Additional vernacular names recorded by Pételot (1953) from Indochina are "dok pha nok", "nâng nãng", "nô trắng", "pha top", "sroul kraham", and "tríng ôc". "Meniran kebo" is an additional orthographic variant of a name previously recorded by me for this species.

Gibbs (1974) found cyanogenesis present in the stems and roots of what he claims to be this species. Without seeing the actual specimens involved, especially in view of the very wide misinterpretation of this species, one cannot be certain that his finding really apply here.

The Pancho 1064 & 2192 and Pancho & Pilgar 56, distributed as C. candicans, are actually C. bicolor A. L. Juss., J. F. Maxwell 74-609 is C. candicans var. sumatrana (Miq.) Moldenke, Pancho 1006 is C. erioclona Schau., Cushing & children 534 and B. C. Stone 8225 are C. erioclona var. paucinervia (Merr.) Moldenke, Collector undetermined s.n. is C. macrophylla Vahl, and Herb. Hort. Bot. Calc. s.n. & Herb. Hort. Bot. Jav. s.n. are C. pedunculata R. Br.

Additional citations: MALAYA: Penang: Wallich 1834/2 (Pd). GREATER SUNDA ISLANDS: Java: Koorders 27608♂ (Pd). CULTIVATED: India: Herb. Hort. Bot. Calc. s.n. (Pd). LOCALITY OF COLLECTION UNDETERMINED: Blackburn s.n. (E—119270); Collector undetermined s.n. (Pd, Pd).

CALLICARPA CANDICANS f. LACINIATA Moldenke

Additional bibliography: Moldenke, *Phytologia* 14: 124. 1966; Moldenke, *Fifth Summ.* 1: 329 (1971) and 2: 852. 1971.



## CALLICARPA CANDICANS var. PERRYANA (Dop) Moldenke

Additional bibliography: Moldenke, Phytologia 14: 124--125. 1966; Moldenke, Fifth Summ. 1: 299 (1971) and 2: 852. 1971.

## CALLICARPA CANDICANS var. SUMATRANA (Miq.) Moldenke

Additional & amended bibliography: C. K. Schneid., Illustr. Handb. Laubholz. 2: 594 & Reg. 20. 1912; Fedde & Schust. in Just, Bot. Jahresber. 47 (2): 244. 1929; Fedde in Just, Bot. Jahresber. 47 (2): 289. 1929; Pételot, Pl. Méd. Camb. Laos & Viet. 2: 246 (1954) and 4: 91. 1954; Moldenke, Fifth Summ. 1: 272, 286, 291, 294, 299, 304, 321, 355, 406, 407, & 418 (1971) and 2: 852. 1971; Moldenke, Phytologia 22: 195 (1971) and 28: 446. 1974.

Larsen and his associates found this plant growing along small streams in evergreen forests, in fruit in August. The corollas are said to have been white on their no. 31391.

Additional citations: CHINESE COASTAL ISLANDS: Hainan: Lei 155 (Ba), 731 (Ba). THAILAND: Larsen, Larsen, Nielsen, & Santisuk 31391 (Ac, Ld); J. F. Maxwell 74-609 (Ac). INDOCHINA: Vietnam: Squires 188 (Pd). GREATER SUNDA ISLANDS: Sumatra: Herb. Hort. Bot. Jav. s.n. (Pd). CULTIVATED: Java: Collector undetermined s.n. [H. B.] (Pd).

## CALLICARPA CATHAYANA Chang

Additional bibliography: Moldenke, Fifth Summ. 1: 226 (1971) and 2: 852. 1971; Moldenke, Phytologia 21: 32--33. 1971.

## CALLICARPA CAUDATA Maxim.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 569. 1941; Moldenke, Fifth Summ. 1: 286, 314, 321, 329, 331, 335, 339, 406, 407, & 414 (1971) and 2: 852. 1971; Moldenke, Phytologia 22: 195--196 & 204. 1971.

Recent collectors refer to this plant as a sprawling shrub, 1.5 m. tall, with shiny purple fruit, and have encountered it on gravelly open flats along rivers, fruiting in July, and record for it the vernacular name, "kuam-kuam".

The Collector undetermined A.168, distributed as C. caudata, actually is C. fulvohirsuta Merr.

Additional citations: PHILIPPINE ISLANDS: Luzon: Elmer 5784 (Pd). NEW GUINEA: Papua: Veldkamp & Stevens 5968 (W--2758358).

## CALLICARPA CAULIFLORA Merr.

Additional bibliography: Moldenke, Fifth Summ. 1: 314 & 415 (1971) and 2: 852. 1971; Moldenke, Phytologia 22: 196. 1971.

## CALLICARPA CHENAULTI Fairchild

Additional bibliography: Moldenke, Phytologia 14: 145--146. 1966; Moldenke, Fifth Summ. 1: 355 (1971) and 2: 852. 1971.

## CALLICARPA CLEMENSORUM Moldenke

Additional bibliography: Moldenke, Fifth Summ. 1: 321 (1971)

and 2: 852. 1971; Moldenke, *Phytologia* 21: 332. 1971.

*CALLICARPA COLLINA* Diels

Additional bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 54 (2): 747. 1945; Moldenke, *Fifth Summ.* 1: 286 & 405 (1971) and 2: 852. 1971; Moldenke, *Phytologia* 22: 196. 1971.

Lau reports this plant as a shrub with a spread of 1.5 m., found it growing along streamsides, and describes the fruit as green in August.

Additional citations: CHINA: Kwangtung: Lau 20274 (E-1145125).

*CALLICARPA CRASSINERVIS* Urb.

Additional bibliography: Moldenke, *Phytologia* 22: 196. 1971; León & Alain, *Fl. Cuba, imp. 2*, 2: 305 & 309. 1974.

*CALLICARPA CUBENSIS* Urb.

Additional bibliography: Moldenke, *Brittonia* 1: 472. 1934; Moldenke, *Fifth Summ.* 1: 94, 98, 100, 355, 380, 403, 407, 410, & 417 (1971) and 2: 852. 1971; Moldenke, *Phytologia* 22: 196 & 283. 1971; A. L. Moldenke, *Phytologia* 23: 318. 1972; León & Alain, *Fl. Cuba, imp. 2*, 2: 304 & 305. 1974.

*CALLICARPA CUBENSIS* var. *PARVIFLORA* Moldenke

Additional bibliography: Moldenke, *Fifth Summ.* 1: 94 & 407 (1971) and 2: 775 & 852. 1971; Moldenke, *Phytologia* 22: 196. 1971; León & Alain, *Fl. Cuba, imp. 2*, 2: 305. 1974.

*CALLICARPA CUNEIFOLIA* Britton & P. Wils.

Additional bibliography: Moldenke, *Fifth Summ.* 1: 94 (1971) and 2: 852. 1971; Moldenke, *Phytologia* 22: 196. 1971; León & Alain, *Fl. Cuba, imp. 2*, 2: 305--307. 1974.

*CALLICARPA DENTICULATA* Merr.

Additional bibliography: Moldenke, *Fifth Summ.* 1: 314 (1971) and 2: 852. 1971; Moldenke, *Phytologia* 21: 33. 1971.

*CALLICARPA DICHOTOMA* (Lour.) K. Koch

Additional & emended bibliography: Paxt., *Pock. Bot. Dict.*, ed. 1, 57 (1840) and ed. 2, 57. 1849; Diels, *Fl. Cent.-China* 548. 1902; C. K. Schneid., *Illustr. Handb. Laubholz.* 2: 587 & 592--594, fig. 385m, & *Reg.* 20. 1911; Britton & Br., *Illustr. Fl.*, ed. 2, imp. 1, 3: 99. 1913; Wangerin in Just, *Bot. Jahresber.* 51 (1): 553. 1923; W. Trelease, *Wint. Bot.*, ed. 3, imp. 1, 333, fig. 1. 1931; Fedde & Schust. in Just, *Bot. Jahresber.* 53 (1): 1071. 1932; Fedde in Just, *Bot. Jahresber.* 51 (2): 265. 1933; E. D. Merr., *Trans. Am. Phil. Soc.*, ser. 2, 24 (2): [Comm. Lour.] 15, 25, 332, & 418. 1935; Britton & Br., *Illustr. Fl.*, ed. 2, imp. 2, 3: 99 (1936) and ed. 2, imp. 3, 3: 99. 1943; E. L. D. Seymour, *New Gard. Encycl.*, ed. 3, 211 (1944) and ed. 4, 211. 1946; Britton & Br., *Illustr. Fl.*, ed. 2, imp. 4, 3: 99. 1947; Hara, *Enum. Sperm. Jap.*,

imp. 1, 1: 182--183. 1948; E. L. D. Seymour, *New Gard. Encycl.*, ed. 5, 211. 1951; B. Blackburn, *Trees & Shrubs East. N. Am.* 103. 1952; Weiss & O'Brien, *Ind. Pl. Diseases U. S.* 5: 1174. 1953; Ikuse, *Pollen Grains Jap.* 128. 1956; Whitlock & Rankin, *New Techn. Dried Fls.* 27. 1962; E. L. D. Seymour, *New Gard. Encycl.*, ed. 6, 211 (1963) and ed. 7, 211. 1964; Anon., *Delect. Sem. Hort. Cent. Tbilis. Georg.* 25. 1966; W. Trelease, *Wint. Bot.*, ed. 3, imp. 2, 333, fig. 2. 1967; Bolkh., Grif, Matvej., & Zakhar., *Chrom. Numb. Flow. Pl.*, imp. 1, 714. 1969; Fogg, *Concise Guide Shrubs* 22. 1969; Suzuki, Ando, & Sasaki, *Jap. Intern. Biol. Prog. CT (P) [Contrib. Phytotax. Geobot. Hirosh. Univ. 138]*: 50. 1969; Bean, *Trees & Shrubs Hardy Brit. Isls.*, ed. 8, 1: 469. 1970; Britton & Br., *Illustr. Fl.*, ed. 2, imp. 5, 3: 99. 1970; E. L. D. Seymour, *New Gard. Encycl.*, ed. 8, 211. 1970; Viertel, *Trees Shrubs Vines* no. 550. 1970; Moldenke, *Fifth Summ.* 1: 20--22, 272, 286, 291, 299, 307, 308, 311, 312, 314, 355, 407--411, 414, 416--418, & 420 (1971) and 2: 519, 605, & 852. 1971; Moldenke, *Phytologia* 22: 196--197 & 206. 1971; Wyman, *Gard. Encycl.*, imp. 1, 174. 1971; R. Bailey, *Good Housekeep. Ill. Encycl. Gard.* 3: 469. 1972; Encke & Buchheim in Zander, *Handwörterb. Pflanzennam.*, ed. 10, 150. 1972; Fletcher in Hillier, *Man. Trees & Shrubs*, ed. 2, 51 (1972) and ed. imp., 51. 1972; Hara, *Enum. Sperm. Jap.*, imp. 2, 1: 182--183. 1972; Queens *Bot. Gard. Soc.*, *Fall Color in Gard.* [2]. 1972; Skinner, *Ornament. Pl. Coastal Northw.* 75. 1972; Wyman, *Gard. Encycl.*, imp. 2, 174. 1972; Moldenke, *Phytologia* 23: 425 (1972) and 25: 233. 1973; Wedge, *Pl. Names*, ed. 1, 2 (1973) and ed. 2, 2. 1974; Bolkh., Grif, Matvej., & Zakhar, *Chrom. Numb. Flow. Pl.*, imp. 2, 714. 1974; R. D. Gibbs, *Chemotax. Flow. Pl.* 3: 1753 & 1754 (1974) and 4: 2064. 1974; Harkness, *Seedlist Handb.* 38. 1974; Hersey, *Flow. Shrubs & Small Trees* 26 & [80], fig. 46. 1974; Whitlock & Rankin, *Dried Fls.* 27. 1975; A. L. Moldenke, *Phytologia* 33: 303. 1976.

Additional illustrations: W. Trelease, *Wint. Bot.*, ed. 3, imp. 1, 333, fig. 2 (1931) and ed. 3, imp. 2, 333, fig. 2. 1967; Hersey, *Flow. Shrubs & Small Trees*, fig. 46 (in color). 1974.

Additional vernacular names recorded for this plant are "jewelberry" and "purple beautyberry". Fletcher (1972) describes it as "A compact shrub about 1.5 m. [tall]. Leaves ovate to obovate coarsely serrated; flowers pink in July, followed by deep lilac fruits." Bailey (1972) says of it that "This is the most attractive and the hardiest species [of the genus], growing to 4 feet, leaves to 3 in. long, toothed in the upper half. Pink flowers are followed by clusters of lilac-violet fruits, for which the species has considerable garden merit in late summer. Zone 6."

Recent collectors describe it as a spreading, arching shrub, 4 ft. tall, the branchlets scurfy, rubescent, the flowers few to many, in cymes, pinkish, the fruit small, in dense clusters on long peduncles, *Roy. Hort. Soc. Amethyst Violet* 35-35/2, 2 mm. in diameter. Gibbs (1974) reports that syringin is not present in the stems of this species and that the results of the HCl/methanol

test were also negative.

The Roy. Bot. Gard. Edinb. Cult. Pl. C.236 and Tsui 601, distributed as C. dichotoma (and the latter so cited by me in a previous publication) are actually C. japonica var. angustata Rehd., while Uno 2611 is C. japonica var. rhombifolia H. J. Lam.

Additional citations: CHINA: Kiangsu: H. T. Chang 8206 (Ba). Kwangtung: Tsui 601 (Pd). JAPAN: Honshu: Charette 1896 (Bl--157434); Maximowicz s.n. [1862] (Pd); Togasi 380 (Ba). Island undetermined: Siebold s.n. (Mu--932). CULTIVATED: India: Herb. Hort. Bot. Calcut. s.n. (Pd); Wallich 1828 (Pd, Pd). Maryland: Cowgill 960 [Pl. Introd. F. H. B. 76216] (Ba). Massachusetts: R. B. Clark A.A.10151-B (Ba). New Jersey: A. L. Moldenke s.n. [Nov. 11, 1968] (Ps--1018). Pennsylvania: Huttleston 1623 (Ba); Pancho 125 (Ba). LOCALITY OF COLLECTION UNDETERMINED: Herb. Reg. Monac. 958 (Mu).

CALLICARPA DICHOTOMA f. ALBIFRUCTA Moldenke

Additional bibliography: Moldenke, Fifth Summ. 1: 355 (1971) and 2: 852. 1971; Moldenke, Phytologia 21: 333. 1971.

Additional citations: CULTIVATED: Japan: Togasi 1667 (Ba--isotype, Bl--157952--isotype, Ws--isotype).

CALLICARPA DICHOTOMA var. SINUATO-DENTATA Dop

Additional bibliography: Moldenke, Phytologia 14: 170. 1966; Moldenke, Fifth Summ. 1: 299 (1971) and 2: 852. 1971.

CALLICARPA DOLICHOPHYLLA Merr.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 569. 1941; Moldenke, Fifth Summ. 1: 314 & 406 (1971) and 2: 852. 1971; Moldenke, Phytologia 22: 197. 1971.

CALLICARPA ELEGANS Hayek

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 53 (1): 1071 (1932) and 60 (2): 570. 1941; Moldenke, Fifth Summ. 1: 314, 319, 320, 333, 406, 407, & 417 (1971) and 2: 852. 1971; Moldenke, Phytologia 22: 197. 1971; Altschul, Drugs & Foods 245. 1973; Farnsworth, Pharmacog. Titles 8 (10): iii. 1973.

Altschul (1973) cites Edaffo 1691 and tells us that this plant's leaves are used as a medicine in the treatment of headaches in the Philippines, where it is known as "lilay".

CALLICARPA ERIOCLONA Schau.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 47 (2): 244. 1927; Fedde in Just, Bot. Jahresber. 47 (2): 289. 1929; Fedde & Schust. in Just, Bot. Jahresber. 53 (1): 1071 (1932) and 60 (2): 570. 1941; Moldenke, Fifth Summ. 1: 258, 294, 299, 314, 319--321, 333--335, 338, 339, 355, 403, 406, 407, 409, 411, 415, & 417 (1971) and 2: 668 & 852. 1971; Moldenke, Phytologia 22: 197 & 282 (1971) and 23: 428. 1972; Hartley, Dunstone,

Fitzgerald, Johns, & Lambertson, Lloydia 36: 293. 1973; Farnsworth, Pharmacog. Titles 9 (1): v. 1974; Moldenke, Phytologia 28: 447. 1974.

Recent collectors describe this plant as a shrub, 5--15 ft. tall, "with brownish hairs", the fruit pale-lavender or black, "said to be poisonous to chickens", "common in secondary forests on low elevations and widely distributed in the Philippines". Hartley and his associates (1973) describe it as a "Tall shrub in disturbed lowland rain forest" in New Guinea, citing his no. 10020. Stone encountered it along roadsides, at 200 meters altitude, flowering and fruiting in March. The corollas are said to have been "pale-purplish or lavender" on Pancho 1006 and "purplish" on Pancho & Rimardo 55.

Additional citations: THAILAND: J. F. Maxwell 72-238 (Ac), 73-42 (Ac). INDOCHINA: Cambodia: B. C. Stone 9308 (K1-12512). PHILIPPINE ISLANDS: Luzon: H. H. Bartlett 14711 (N); Edaño s.n. [Herb. Philip. Bur. Sci. 78500] (Ba); E. D. Merrill 2536 (E-119267); Pancho 1006 (Ba); Pancho & Rimardo 55 (Ba); Ramos & Edaño s.n. [Herb. Philip. Bur. Sci. 47121] (Pd).

CALLICARPA ERIOCLONA f. GLABRESCENS Moldenke

Additional bibliography: Moldenke, Phytologia 16: 364. 1968; Moldenke, Fifth Summ. 1: 320, 334, & 355 (1971) and 2: 852. 1971; Moldenke, Phytologia 28: 447. 1974.

Alkire reports that this plant is used as an ingredient in medicines for the treatment of "diseases caused by spirits of the sea" in the Caroline Islands. He found it growing in the interior portion of the island.

Additional citations: CAROLINE ISLANDS: Woleai: Alkire 11 (W-2669098).

CALLICARPA ERIOCLONA var. PAUCINERVIA (Merr.) Moldenke

Additional synonymy: "Callicarpa candicans var. (Callicarpa paucinervia Merrill)" ex Fosberg, Falanruw, & Sachet, Smithson. Contrib. Bot. 22: 38. 1975.

Additional bibliography: B. C. Stone, Micronesica 6: [Fl. Guam] 37 & 503--504. 1970; Moldenke, Fifth Summ. 1: 319, 320, 334, 339, & 415 (1971) and 2: 852. 1971; Moldenke, Phytologia 22: 197. 1971; Altschul, Drugs & Foods 245. 1973; Fosberg, Falanruw, & Sachet, Smithson. Contrib. Bot. 22: 38. 1975.

The C. candicans described by Stone (1970) from Guam and by Altschul (1973) from the Caroline Islands is undoubtedly C. erioclona var. paucinervia. Stone asserts that it is "common, usually coastal" and "This is a very attractive shrub worthy of cultivation". Altschul cites Wong 135, reporting that the plant is used in the Caroline Islands, the wood and leaves in the treatment of headaches and the "semum cukó" or "chicken sickness", the wood being boiled and used mixed with coconut, then eaten, the leaves are pounded and eaten, and the fruit is pounded and "put in the eyes". She reports the vernacular name, "ääkyn".

Recent collectors describe the plant as a small shrub, the young leaves and stems "dusty", and have encountered it as altitudes from sealevel to 20 feet and "below 150 feet". Cushing refers to it as "commonly growing at the edge of vines on limestone at sealevel" on Yap, where he records the vernacular names, "garawow" and "rarwao". The corollas are said to have been white when fresh on Cushing & children 534. The plant has been collected in anthesis and fruit in July and August. Material has been misidentified and distributed in some herbaria as C. candicans (Burm. f.) Hochr.

Fosberg and his associates (1975) cite the following collections from the Marianas Islands: Agrigan: F. R. Fosberg 31599 (W). Alamagan: F. R. Fosberg 31706 (W). Anatahan: Falanruw 1652 (W). Pagan: Anderson 546 (W), 585 (W); Kanehira 2203 (W); Moore 340 (W), 424 (W).

Additional citations: MARIANAS ISLANDS: Guam: B. C. Stone 8225 (K1-10522). PALAU ISLANDS: Garim: Cushing & children 534 (K1-8358).

#### CALLICARPA ERYTHROSTICTA Merr. & Chun

Additional bibliography: Moldenke, Fifth Summ. 1: 291 (1971) and 2: 582. 1971; Moldenke, Phytologia 21: 333. 1971.

#### CALLICARPA FASCICULIFLORA Merr.

Additional bibliography: Moldenke, Phytologia 14: 184-185. 1966; Moldenke, Fifth Summ. 1: 314 (1971) and 2: 852. 1971.

#### CALLICARPA FERRUGINEA Sw.

Additional & emended bibliography: Raeusch., Nom. Bot., ed. 3, 37. 1797; Pers., Sp. Pl. 1: 343. 1817; Paxt., Pock. Bot. Dict., ed. 1, 57 (1840) and ed. 2, 57. 1849; Fedde & Schust. in Just, Bot. Jahresber. 53 (1): 1070. 1932; Moldenke, Fifth Summ. 1: 94, 100, 355, 408, & 413 (1971) and 2: 852. 1971; Moldenke, Phytologia 22: 198 & 294. 1971; C. D. Adams, Flow. Pl. Jam. 633-634 & 805. 1972; León & Alain, Fl. Cuba, imp. 2, 2: 304 & 306. 1974.

Adams (1972) tells us that in Jamaica this species is "occasional in sheltered submontane and montane woodlands", from 1500 to 6000 feet altitude, flowering from April to August, and fruiting from June to December. He cites Adams 11456 & 12527, Harris & Britton 10554, and Proctor 6802 & 16530.

The Pringle 3094, misidentified as and distributed in many herbaria as C. ferruginea, is actually the type collection of C. acuminata var. pringlei (Briq.) Moldenke.

#### CALLICARPA FLOCCOSA Urb.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 53 (1): 1070. 1932; Moldenke, Fifth Summ. 1: 94 (1971) and 2: 852. 1971; Moldenke, Phytologia 21: 446. 1971; Alemán Frías, Aurich, Ezcurra Ferrer, Gutiérrez Vázquez, Horstmann, López Rendueles, Rodríguez Graquitena, Roquel Casabella, & Schreiber, Die

Kulturpfl. 19: 421. 1972; Farnsworth, Pharmacog. Titles 8 (8): iv. 1973; León & Alain, Fl. Cuba, imp. 2, 2: 305 & 309. 1974.

#### CALLICARPA FORMOSANA Rolfe

Additional bibliography: Diels, Fl. Cent.-China 548. 1902; E. D. Merr., Fl. Manila, imp. 1, 400 & 401 (1912) and imp. 2, 400 & 401. 1968; Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl., imp. 1, 714. 1969; Willaman & Li, Lloydia 33, Suppl. 3a: 220. 1970; Moldenke, Fifth Summ. 1: 286, 291, 293, 311, 312, 314, 355, 404, 405, 409, 414, & 415 (1971) and 2: 852. 1971; Moldenke, Phytologia 22: 198 & 283. 1971; Huang, Pollen Fl. Taiwan 243, pl. 161, fig. 5—8. 1972; Moldenke, Phytologia 23: 428 (1972) and 25: 233. 1973; Altschul, Drugs & Foods 245. 1973; Farnsworth, Pharmacog. Titles 8 (10): iii. 1973; Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl., imp. 2, 714. 1974; Moldenke, Phytologia 31: 390. 1975.

Additional illustrations: Huang, Pollen Fl. Taiwan, pl. 161, fig. 5—8. 1972.

Recent collectors describe this plant as shrubby but mostly single-stemmed, 1 m. tall, with white fruit [drupes, not "berries"! ] and have found it growing in ravines and in "jungle-like growth", fruiting in March. The corollas on Judd & Bryan 158 are described as having been "pale-lavender". Ferris 11922 represents an extra densely hairy form. Chuang and his associates (1963) report the chromosome number as 36. Huang (1972) describes the pollen as "Grains prolate-spheroidal to suboblate; 25—33 x 28—36  $\mu$ ", citing Huang s.n. [Mar. 17, 1966] from Formosa. Altschul (1973) cites Paniza 9419, says that it is used as an insecticide, and records the vernacular name, "tigao".

The Edaffo s.n. [Herb. Philip. Bur. Sci. 78550], distributed as C. formosana, is actually var. glabrescens Moldenke.

Additional citations: CHINA: Kwangtung: Ferris 11922 (E—2003029). CHINESE COASTAL ISLANDS: High: S. Y. Hu 8723 (W—2697266). FORMOSA: Koyama & Kao 14240 (N). PHILIPPINE ISLANDS: Luzon: Elmer 5629 (Pd); E. D. Merrill 2522 (E—119266). CULTIVATED: Hawaiian Islands: Judd & Bryan 158 (Ba).

#### CALLICARPA FORMOSANA f. ALBIFLORA Yamamoto

Additional bibliography: Moldenke, Fifth Summ. 1: 286 & 312 (1971) and 2: 852. 1971; Moldenke, Phytologia 22: 198. 1971.

Additional citations: FORMOSA: Chuang 2722 (Kh).

#### CALLICARPA FORMOSANA f. ANGUSTATA Moldenke

Additional bibliography: Moldenke, Fifth Summ. 1: 312, 314, & 409 (1971) and 2: 852. 1971.

#### CALLICARPA FORMOSANA var. CHINENSIS P'ei

Additional bibliography: Fedde & Schust. in Just, Bot. Jahrbuch. 60 (2): 570. 1941; Moldenke, Fifth Summ. 1: 286, 410, & 415 (1971) and 2: 852. 1971; Moldenke, Phytologia 21: 153. 1971.

*CALLICARPA FORMOSANA* var. *GLABRESCENS* Moldenke

Additional bibliography: Moldenke, Fifth Summ. 1: 314 & 407 (1971) and 2: 853. 1971; Moldenke, *Phytologia* 22: 198. 1971.

Edaffo encountered this plant in fruit in November.

Additional citations: PHILIPPINE ISLANDS: Luzon: Edaffo s.n. [Herb. Philip. Bur. Sci. 78500] (Ba). Mindoro: M. Ramos s.n. [Herb. Philip. Bur. Sci. 46442] (Pd).

*CALLICARPA FORMOSANA* var. *LONGIFOLIA* Suzuki

Additional bibliography: Moldenke, Fifth Summ. 1: 312 & 415 (1971) and 2: 853. 1971; Moldenke, *Phytologia* 21: 38--39. 1971.

*CALLICARPA FORMOSANA* f. *PARVIFOLIA* Moldenke

Additional bibliography: Moldenke, Fifth Summ. 1: 314 (1971) and 2: 853. 1971; Moldenke, *Phytologia* 21: 39. 1971.

Additional citations: PHILIPPINE ISLANDS: Luzon: Ramos & Edaffo s.n. [Herb. Philip. Bur. Sci. 44745] (Pd), s.n. [Herb. Philip. Bur. Sci. 45067] (Pd).

*CALLICARPA FULVA* A. Rich.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahrbuch. 60 (2): 570. 1941; Moldenke, Fifth Summ. 1: 94, 404, 408, 409, & 418 (1971) and 2: 853. 1971; Moldenke, *Phytologia* 22: 198. 1971; León & Alain, Fl. Cuba, imp. 2, 2: 305, 307, & 309. 1974.

*CALLICARPA FULVA* var. *GLABRESCENS* Moldenke

Additional bibliography: Fedde & Schust. in Just, Bot. Jahrbuch. 60 (2): 570. 1941; Moldenke, Fifth Summ. 1: 94 (1971) and 2: 853. 1971; Moldenke, *Phytologia* 22: 198. 1971; León & Alain, Fl. Cuba, imp. 2, 2: 307. 1974.

*CALLICARPA FULVOHIRSUTA* Merr.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahrbuch. 47 (2): 244. 1927; Moldenke, Fifth Summ. 1: 321 & 409 (1971) and 2: 853. 1971; Moldenke, *Phytologia* 22: 198. 1971.

Material of this species has been misidentified and distributed in some herbaria as *C. caudata* Maxim.

Additional citations: GREATER SUNDA ISLANDS: Sabah: Collector undetermined A.168 (K1--17408, Z).

*CALLICARPA FURFURACEA* Ridl.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahrbuch. 53 (1): 1070 (1932) and 54 (2): 747. 1934; Moldenke, Fifth Summ. 1: 304 (1971) and 2: 853. 1971; Moldenke, *Phytologia* 21: 446. 1971.

The Samat bin Abdullah 58, distributed as *C. furfuracea*, appears to be something in the Urticaceae.

[to be continued]